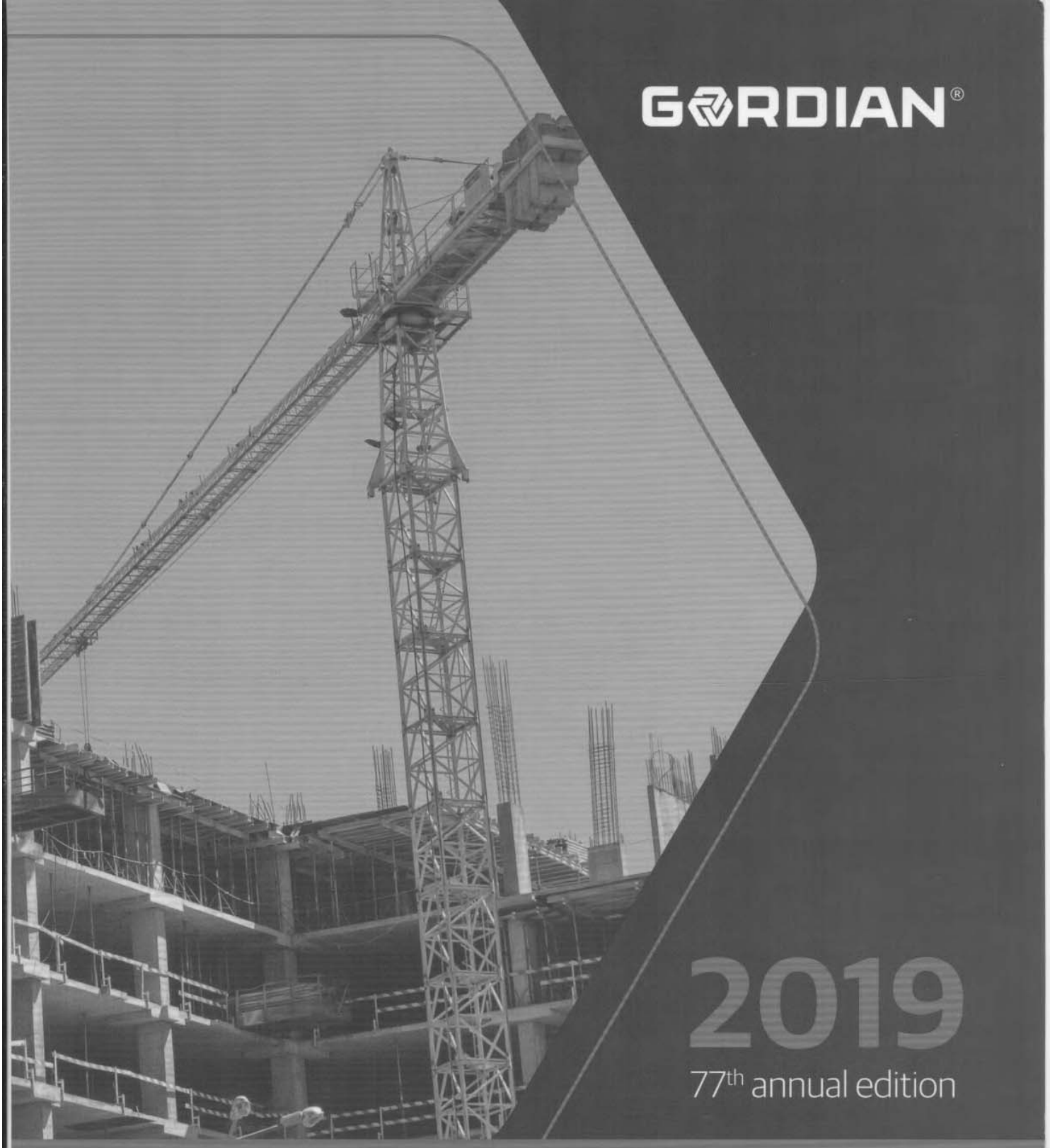

GORDIAN®

2019

77th annual edition

Building Construction Costs
with RSMeans data

Estimating Tips

General

- Carefully check all the plans and specifications. Concrete often appears on drawings other than structural drawings, including mechanical and electrical drawings for equipment pads. The cost of cutting and patching is often difficult to estimate. See Subdivision 03 81 for Concrete Cutting, Subdivision 02 41 19.16 for Cutout Demolition, Subdivision 03 05 05.10 for Concrete Demolition, and Subdivision 02 41 19.19 for Rubbish Handling (handling, loading, and hauling of debris).
- Always obtain concrete prices from suppliers near the job site. A volume discount can often be negotiated, depending upon competition in the area. Remember to add for waste, particularly for slabs and footings on grade.

03 10 00 Concrete Forming and Accessories

- A primary cost for concrete construction is forming. Most jobs today are constructed with prefabricated forms. The selection of the forms best suited for the job and the total square feet of forms required for efficient concrete forming and placing are key elements in estimating concrete construction. Enough forms must be available for erection to make efficient use of the concrete placing equipment and crew.
- Concrete accessories for forming and placing depend upon the systems used. Study the plans and specifications to ensure that all special accessory requirements have been included in the cost estimate, such as anchor bolts, inserts, and hangers.
- Included within costs for forms-in-place are all necessary bracing and shoring.

03 20 00 Concrete Reinforcing

- Ascertain that the reinforcing steel supplier has included all accessories, cutting, bending, and an allowance for lapping, splicing, and waste. A good rule of thumb is 10% for lapping, splicing, and waste. Also, 10% waste should be allowed for welded wire fabric.
- The unit price items in the subdivisions for Reinforcing In Place, Glass Fiber Reinforcing, and Welded Wire Fabric include the labor to install accessories such as beam and slab bolsters, high chairs, and bar ties and tie wire. The material cost for these accessories is not included; they may be obtained from the Accessories Subdivisions.

03 30 00 Cast-In-Place Concrete

- When estimating structural concrete, pay particular attention to requirements for concrete additives, curing methods, and surface treatments. Special consideration for climate, hot or cold, must be included in your estimate. Be sure to include requirements for concrete placing equipment and concrete finishing.
- For accurate concrete estimating, the estimator must consider each of the following major components individually: forms, reinforcing steel, ready-mix concrete, placement of the concrete, and finishing of the top surface. For faster estimating, Subdivision 03 30 53.40 for Concrete-In-Place can be used; here, various items of concrete work are presented that include the costs of all five major components (unless specifically stated otherwise).

03 40 00 Precast Concrete
03 50 00 Cast Decks and Underlayment

- The cost of hauling precast concrete structural members is often an important factor. For this reason, it is important to get a quote from the nearest supplier. It may become economically feasible to set up precasting beds on the site if the hauling costs are prohibitive.

Reference Numbers

Reference numbers are shown at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear. ■

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03 05 Common Work Results for Concrete

03 05 13 – Basic Concrete Materials

	03 05 13.30 Cement	Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0520	L.T.L. or L.C.L. lots				Bag	39.50			39.50	43.50
0600	White, type I, T.L. or C.L. lots, bags					29			29	31.50
0620	L.T.L. or L.C.L. lots					30.50			30.50	33.50
	03 05 13.80 Waterproofing and Dampproofing									
0010	**WATERPROOFING AND DAMPPROOFING**									
0050	Integral waterproofing, add to cost of regular concrete				C.Y.	21.50			21.50	24
	03 05 13.85 Winter Protection									
0010	**WINTER PROTECTION**									
0012	For heated ready mix, add				C.Y.	5.35			5.35	5.90
0100	Temporary heat to protect concrete, 24 hours	2 Clab	50	.320	M.S.F.	204	13.15		217.15	244
0200	Temporary shelter for slab on grade, wood frame/polyethylene sheeting									
0201	Build or remove, light framing for short spans	2 Carp	10	1.600	M.S.F.	315	82.50		397.50	470
0210	Large framing for long spans	"	3	5.333	"	420	275		695	875
0500	Electrically heated pads, 110 volts, 15 watts/S.F., buy				S.F.	11.10			11.10	12.20
0600	20 watts/S.F., buy					14.75			14.75	16.25
0710	Electrically heated pads, 15 watts/S.F., 20 uses					.56			.56	.61

03 11 Concrete Forming

03 11 13 – Structural Cast-In-Place Concrete Forming

03 11 13.20 Forms In Place, Beams and Girders

0010	**FORMS IN PLACE, BEAMS AND GIRDERS** R031113-40									
0500	Exterior spandrel, job-built plywood, 12" wide, 1 use	C-2	225	.213	SFCA	3.17	10.70		13.87	19.70
0550	2 use R031113-60		275	.175		1.66	8.75		10.41	15.05
0600	3 use		295	.163		1.27	8.15		9.42	13.75
0650	4 use		310	.155		1.03	7.80		8.83	12.90
1000	18" wide, 1 use		250	.192		2.79	9.65		12.44	17.65
1050	2 use		275	.175		1.53	8.75		10.28	14.95
1100	3 use		305	.157		1.12	7.90		9.02	13.20
1150	4 use		315	.152		.91	7.65		8.56	12.60
1500	24" wide, 1 use		265	.181		2.54	9.10		11.64	16.55
1550	2 use		290	.166		1.43	8.30		9.73	14.20
1600	3 use		315	.152		1.02	7.65		8.67	12.70
1650	4 use		325	.148		.83	7.40		8.23	12.10
2000	Interior beam, job-built plywood, 12" wide, 1 use		300	.160		3.76	8.05		11.81	16.30
2050	2 use		340	.141		1.81	7.10		8.91	12.75
2100	3 use		364	.132		1.50	6.60		8.10	11.65
2150	4 use		377	.127		1.22	6.40		7.62	11
2500	24" wide, 1 use		320	.150		2.60	7.55		10.15	14.25
2550	2 use		365	.132		1.47	6.60		8.07	11.60
2600	3 use		385	.125		1.03	6.25		7.28	10.60
2650	4 use		395	.122		.84	6.10		6.94	10.15
3000	Encasing steel beam, hung, job-built plywood, 1 use		325	.148		3.24	7.40		10.64	14.75
3050	2 use		390	.123		1.78	6.20		7.98	11.30
3100	3 use		415	.116		1.30	5.80		7.10	10.25
3150	4 use		430	.112		1.05	5.60		6.65	9.65
3500	Bottoms only, to 30" wide, job-built plywood, 1 use		230	.209		4.37	10.50		14.87	20.50
3550	2 use		265	.181		2.45	9.10		11.55	16.45
3600	3 use		280	.171		1.75	8.60		10.35	14.95
3650	4 use		290	.166		1.42	8.30		9.72	14.15
4000	Sides only, vertical, 36" high, job-built plywood, 1 use		335	.143		5.40	7.20		12.60	16.85

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	03 11 13.20 Forms In Place, Beams and Girders		Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
4050	2 use		C-2	405	.119	SFCA	2.97	5.95		8.92	12.25
4100	3 use			430	.112		2.16	5.60		7.76	10.90
4150	4 use			445	.108		1.75	5.40		7.15	10.15
4500	Sloped sides, 36" high, 1 use			305	.157		5.15	7.90		13.05	17.65
4550	2 use			370	.130		2.88	6.50		9.38	13
4600	3 use			405	.119		2.07	5.95		8.02	11.30
4650	4 use			425	.113		1.68	5.65		7.33	10.45
5000	Upstanding beams, 36" high, 1 use			225	.213		6.70	10.70		17.40	23.50
5050	2 use			255	.188		3.71	9.45		13.16	18.40
5100	3 use			275	.175		2.70	8.75		11.45	16.20
5150	4 use			280	.171		2.19	8.60		10.79	15.45
	03 11 13.25 Forms In Place, Columns										
0010	**FORMS IN PLACE, COLUMNS**	R031113-40									
0500	Round fiberglass, 4 use per mo., rent, 12" diameter		C-1	160	.200	L.F.	8.60	9.80		18.40	24.50
0550	16" diameter	R031113-60		150	.213		10.20	10.45		20.65	27
0600	18" diameter			140	.229		11.40	11.20		22.60	29.50
0650	24" diameter			135	.237		14.20	11.60		25.80	33
0700	28" diameter			130	.246		15.90	12.05		27.95	35.50
0800	30" diameter			125	.256		16.55	12.55		29.10	37
0850	36" diameter			120	.267		22	13.05		35.05	44.50
1500	Round fiber tube, recycled paper, 1 use, 8" diameter	G		155	.206		2.94	10.10		13.04	18.55
1550	10" diameter	G		155	.206		3.64	10.10		13.74	19.30
1600	12" diameter	G		150	.213		4.14	10.45		14.59	20.50
1650	14" diameter	G		145	.221		4.40	10.80		15.20	21
1700	16" diameter	G		140	.229		5.50	11.20		16.70	23
1720	18" diameter	G		140	.229		6.40	11.20		17.60	24
1750	20" diameter	G		135	.237		8.15	11.60		19.75	26.50
1800	24" diameter	G		130	.246		10.15	12.05		22.20	29.50
1850	30" diameter	G		125	.256		13.65	12.55		26.20	34
1900	36" diameter	G		115	.278		20.50	13.65		34.15	43
1950	42" diameter	G		100	.320		44.50	15.70		60.20	72.50
2000	48" diameter	G		85	.376		55.50	18.45		73.95	89
2200	For seamless type, add						15%				
3000	Round, steel, 4 use per mo., rent, regular duty, 14" diameter	G	C-1	145	.221	L.F.	18.70	10.80		29.50	37
3050	16" diameter	G		125	.256		19.10	12.55		31.65	40
3100	Heavy duty, 20" diameter	G		105	.305		20.50	14.95		35.45	45
3150	24" diameter	G		85	.376		22.50	18.45		40.95	53
3200	30" diameter	G		70	.457		26	22.50		48.50	62.50
3250	36" diameter	G		60	.533		28	26		54	70
3300	48" diameter	G		50	.640		41.50	31.50		73	93
3350	60" diameter	G		45	.711		51	35		86	109
4500	For second and succeeding months, deduct						50%				
5000	Job-built plywood, 8" x 8" columns, 1 use		C-1	165	.194	SFCA	2.73	9.50		12.23	17.40
5050	2 use			195	.164		1.56	8.05		9.61	13.85
5100	3 use			210	.152		1.09	7.45		8.54	12.50
5150	4 use			215	.149		.90	7.30		8.20	12.05
5500	12" x 12" columns, 1 use			180	.178		2.63	8.70		11.33	16.10
5550	2 use			210	.152		1.45	7.45		8.90	12.90
5600	3 use			220	.145		1.05	7.15		8.20	11.95
5650	4 use			225	.142		.85	6.95		7.80	11.50
6000	16" x 16" columns, 1 use			185	.173		2.63	8.50		11.13	15.70
6050	2 use			215	.149		1.41	7.30		8.71	12.60

	03 11 13.25 Forms In Place, Columns		Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
6100	3 use		C-1	230	.139	SFCA	1.06	6.80		7.86	11.45
6150	4 use			235	.136		.86	6.65		7.51	11.05
6500	24" x 24" columns, 1 use			190	.168		2.98	8.25		11.23	15.80
6550	2 use			216	.148		1.64	7.25		8.89	12.80
6600	3 use			230	.139		1.19	6.80		7.99	11.60
6650	4 use			238	.134		.97	6.60		7.57	11
7000	36" x 36" columns, 1 use			200	.160		2.22	7.85		10.07	14.30
7050	2 use			230	.139		1.26	6.80		8.06	11.70
7100	3 use			245	.131		.89	6.40		7.29	10.70
7150	4 use			250	.128		.72	6.25		6.97	10.30
7400	Steel framed plywood, based on 50 uses of purchased										
7420	forms, and 4 uses of bracing lumber										
7500	8" x 8" column		C-1	340	.094	SFCA	2.18	4.61		6.79	9.40
7550	10" x 10"			350	.091		1.94	4.48		6.42	8.95
7600	12" x 12"			370	.086		1.65	4.24		5.89	8.20
7650	16" x 16"			400	.080		1.28	3.92		5.20	7.35
7700	20" x 20"			420	.076		1.14	3.73		4.87	6.90
7750	24" x 24"			440	.073		.80	3.56		4.36	6.30
7755	30" x 30"			440	.073		1.02	3.56		4.58	6.50
7760	36" x 36"			460	.070		.90	3.41		4.31	6.15
	03 11 13.30 Forms In Place, Culvert										
0010	**FORMS IN PLACE, CULVERT**	R031113-40									
0015	5' to 8' square or rectangular, 1 use		C-1	170	.188	SFCA	4.07	9.20		13.27	18.40
0050	2 use	R031113-60		180	.178		2.45	8.70		11.15	15.90
0100	3 use			190	.168		1.92	8.25		10.17	14.60
0150	4 use			200	.160		1.65	7.85		9.50	13.65
	03 11 13.35 Forms In Place, Elevated Slabs										
0010	**FORMS IN PLACE, ELEVATED SLABS**	R031113-40									
1000	Flat plate, job-built plywood, to 15' high, 1 use	R031113-60	C-2	470	.102	S.F.	4.07	5.15		9.22	12.25
1050	2 use			520	.092		2.24	4.64		6.88	9.45
1100	3 use			545	.088		1.63	4.42		6.05	8.50
1150	4 use			560	.086		1.32	4.30		5.62	7.95
1500	15' to 20' high ceilings, 4 use			495	.097		1.34	4.87		6.21	8.80
1600	21' to 35' high ceilings, 4 use			450	.107		1.67	5.35		7.02	9.95
2000	Flat slab, drop panels, job-built plywood, to 15' high, 1 use			449	.107		4.51	5.35		9.86	13.05
2050	2 use			509	.094		2.48	4.74		7.22	9.90
2100	3 use			532	.090		1.80	4.53		6.33	8.85
2150	4 use			544	.088		1.47	4.43		5.90	8.30
2250	15' to 20' high ceilings, 4 use			480	.100		2.61	5		7.61	10.45
2350	20' to 35' high ceilings, 4 use			435	.110		2.93	5.55		8.48	11.60
3000	Floor slab hung from steel beams, 1 use			485	.099		2.73	4.97		7.70	10.50
3050	2 use			535	.090		2.16	4.51		6.67	9.15
3100	3 use			550	.087		1.96	4.38		6.34	8.80
3150	4 use			565	.085		1.87	4.27		6.14	8.50
3500	Floor slab, with 1-way joist pans, 1 use			415	.116		8.05	5.80		13.85	17.65
3550	2 use			445	.108		6	5.40		11.40	14.85
3600	3 use			475	.101		5.35	5.05		10.40	13.60
3650	4 use			500	.096		5	4.82		9.82	12.80
4500	With 2-way waffle domes, 1 use			405	.119		8.50	5.95		14.45	18.40
4520	2 use			450	.107		6.50	5.35		11.85	15.25
4530	3 use			460	.104		5.80	5.25		11.05	14.35
4550	4 use			470	.102		5.45	5.15		10.60	13.75

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			Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
03 11 13.35	**Forms In Place, Elevated Slabs**										
5000	Box out for slab openings, over 16" deep, 1 use		C-2	190	.253	SFCA	3.76	12.70		16.46	23.50
5050	2 use			240	.200	"	2.07	10.05		12.12	17.45
5500	Shallow slab box outs, to 10 S.F.			42	1.143	Ea.	12.60	57.50		70.10	101
5550	Over 10 S.F. (use perimeter)			600	.080	L.F.	1.69	4.02		5.71	7.95
6000	Bulkhead forms for slab, with keyway, 1 use, 2 piece			500	.096		1.84	4.82		6.66	9.30
6100	3 piece (see also edge forms)			460	.104		1.96	5.25		7.21	10.10
6200	Slab bulkhead form, 4-1/2" high, exp metal, w/keyway & stakes	G	C-1	1200	.027		.94	1.31		2.25	3.01
6210	5-1/2" high	G		1100	.029		1.18	1.43		2.61	3.46
6215	7-1/2" high	G		960	.033		1.41	1.63		3.04	4.02
6220	9-1/2" high	G		840	.038		1.53	1.87		3.40	4.50
6500	Curb forms, wood, 6" to 12" high, on elevated slabs, 1 use			180	.178	SFCA	1.75	8.70		10.45	15.10
6550	2 use			205	.156		.96	7.65		8.61	12.60
6600	3 use			220	.145		.70	7.15		7.85	11.55
6650	4 use			225	.142		.57	6.95		7.52	11.15
7000	Edge forms to 6" high, on elevated slab, 4 use			500	.064	L.F.	.23	3.14		3.37	5
7070	7" to 12" high, 1 use			162	.198	SFCA	1.33	9.70		11.03	16.10
7080	2 use			198	.162		.73	7.90		8.63	12.80
7090	3 use			222	.144		.53	7.05		7.58	11.30
7101	4 use			350	.091		.23	4.48		4.71	7.05
7500	Depressed area forms to 12" high, 4 use			300	.107	L.F.	.84	5.25		6.09	8.80
7550	12" to 24" high, 4 use			175	.183		1.14	8.95		10.09	14.80
8000	Perimeter deck and rail for elevated slabs, straight			90	.356		12.60	17.40		30	40.50
8050	Curved			65	.492		17.25	24		41.25	55.50
8500	Void forms, round plastic, 8" high x 3" diameter	G		450	.071	Ea.	2.04	3.48		5.52	7.50
8550	4" diameter	G		425	.075		2.31	3.69		6	8.15
8600	6" diameter	G		400	.080		4.04	3.92		7.96	10.40
8650	8" diameter	G		375	.085		6.95	4.18		11.13	14
03 11 13.40	**Forms In Place, Equipment Foundations**										
0010	**FORMS IN PLACE, EQUIPMENT FOUNDATIONS**	R031113-40									
0020	1 use		C-2	160	.300	SFCA	2.99	15.05		18.04	26.50
0050	2 use	R031113-60		190	.253		1.64	12.70		14.34	21
0100	3 use			200	.240		1.20	12.05		13.25	19.55
0150	4 use			205	.234		.98	11.75		12.73	18.85
03 11 13.45	**Forms In Place, Footings**										
0010	**FORMS IN PLACE, FOOTINGS**	R031113-40									
0020	Continuous wall, plywood, 1 use		C-1	375	.085	SFCA	7	4.18		11.18	14.05
0050	2 use	R031113-60		440	.073		3.85	3.56		7.41	9.65
0100	3 use			470	.068		2.80	3.34		6.14	8.15
0150	4 use			485	.066		2.28	3.23		5.51	7.40
0500	Dowel supports for footings or beams, 1 use			500	.064	L.F.	.95	3.14		4.09	5.80
1000	Integral starter wall, to 4" high, 1 use			400	.080		1.07	3.92		4.99	7.15
1500	Keyway, 4 use, tapered wood, 2" x 4"		1 Carp	530	.015		.23	.78		1.01	1.43
1550	2" x 6"			500	.016		.36	.83		1.19	1.64
2000	Tapered plastic			530	.015		1.41	.78		2.19	2.73
2250	For keyway hung from supports, add			150	.053		.95	2.75		3.70	5.20
3000	Pile cap, square or rectangular, job-built plywood, 1 use		C-1	290	.110	SFCA	2.96	5.40		8.36	11.45
3050	2 use			346	.092		1.63	4.53		6.16	8.65
3100	3 use			371	.086		1.18	4.23		5.41	7.70
3150	4 use			383	.084		.96	4.09		5.05	7.25
4000	Triangular or hexagonal, 1 use			225	.142		3.46	6.95		10.41	14.35
4050	2 use			280	.114		1.90	5.60		7.50	10.55
4100	3 use			305	.105		1.38	5.15		6.53	9.30

			Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
03 11 13.45	**Forms In Place, Footings**										
4150	4 use		C-1	315	.102	SFCA	1.12	4.98		6.10	8.80
5000	Spread footings, job-built lumber, 1 use			305	.105		2.31	5.15		7.46	10.35
5050	2 use			371	.086		1.29	4.23		5.52	7.80
5100	3 use			401	.080		.93	3.91		4.84	6.90
5150	4 use			414	.077		.75	3.79		4.54	6.60
6000	Supports for dowels, plinths or templates, 2' x 2' footing			25	1.280	Ea.	6.15	62.50		68.65	102
6050	4' x 4' footing			22	1.455		12.30	71.50		83.80	122
6100	8' x 8' footing			20	1.600		24.50	78.50		103	146
6150	12' x 12' footing			17	1.882		30.50	92		122.50	174
7000	Plinths, job-built plywood, 1 use			250	.128	SFCA	3.19	6.25		9.44	13
7100	4 use			270	.119	"	1.05	5.80		6.85	9.95
03 11 13.47	**Forms In Place, Gas Station Forms**										
0010	**FORMS IN PLACE, GAS STATION FORMS**										
0050	Curb fascia, with template, 12 ga. steel, left in place, 9" high	G	1 Carp	50	.160	L.F.	13.85	8.25		22.10	28
1000	Sign or light bases, 18" diameter, 9" high	G		9	.889	Ea.	87	46		133	166
1050	30" diameter, 13" high	G		8	1		139	51.50		190.50	231
2000	Island forms, 10' long, 9" high, 3'-6" wide	G	C-1	10	3.200		385	157		542	660
2050	4' wide	G		9	3.556		400	174		574	705
2500	20' long, 9" high, 4' wide	G		6	5.333		640	261		901	1,100
2550	5' wide	G		5	6.400		670	315		985	1,200
03 11 13.50	**Forms In Place, Grade Beam**										
0010	**FORMS IN PLACE, GRADE BEAM**	R031113-40									
0020	Job-built plywood, 1 use		C-2	530	.091	SFCA	3.20	4.55		7.75	10.45
0050	2 use	R031113-60		580	.083		1.76	4.16		5.92	8.25
0100	3 use			600	.080		1.28	4.02		5.30	7.50
0150	4 use			605	.079		1.04	3.98		5.02	7.20
03 11 13.55	**Forms In Place, Mat Foundation**										
0010	**FORMS IN PLACE, MAT FOUNDATION**	R031113-40									
0020	Job-built plywood, 1 use		C-2	290	.166	SFCA	3.07	8.30		11.37	15.95
0050	2 use	R031113-60		310	.155		1.27	7.80		9.07	13.15
0100	3 use			330	.145		.82	7.30		8.12	11.95
0120	4 use			350	.137		.75	6.90		7.65	11.25
03 11 13.65	**Forms In Place, Slab On Grade**										
0010	**FORMS IN PLACE, SLAB ON GRADE**	R031113-40									
1000	Bulkhead forms w/keyway, wood, 6" high, 1 use		C-1	510	.063	L.F.	1.13	3.07		4.20	5.90
1050	2 uses	R031113-60		400	.080		.62	3.92		4.54	6.65
1100	4 uses			350	.091		.37	4.48		4.85	7.20
1400	Bulkhead form for slab, 4-1/2" high, exp metal, incl. keyway & stakes	G		1200	.027		.94	1.31		2.25	3.01
1410	5-1/2" high	G		1100	.029		1.18	1.43		2.61	3.46
1420	7-1/2" high	G		960	.033		1.41	1.63		3.04	4.02
1430	9-1/2" high	G		840	.038		1.53	1.87		3.40	4.50
2000	Curb forms, wood, 6" to 12" high, on grade, 1 use			215	.149	SFCA	1.94	7.30		9.24	13.20
2050	2 use			250	.128		1.07	6.25		7.32	10.70
2100	3 use			265	.121		.77	5.90		6.67	9.80
2150	4 use			275	.116		.63	5.70		6.33	9.35
3000	Edge forms, wood, 4 use, on grade, to 6" high			600	.053	L.F.	.31	2.61		2.92	4.29
3050	7" to 12" high			435	.074	SFCA	.73	3.60		4.33	6.25
3060	Over 12"			350	.091	"	.95	4.48		5.43	7.85
3500	For depressed slabs, 4 use, to 12" high			300	.107	L.F.	.78	5.25		6.03	8.75
3550	To 24" high			175	.183		1.03	8.95		9.98	14.70
4000	For slab blockouts, to 12" high, 1 use			200	.160		.84	7.85		8.69	12.75
4050	To 24" high, 1 use			120	.267		1.06	13.05		14.11	21

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	03 11 13.65 Forms In Place, Slab On Grade		Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
4100	Plastic (extruded), to 6" high, multiple use, on grade		C-1	800	.040	L.F.	6.65	1.96		8.61	10.25
5000	Screed, 24 ga. metal key joint, see Section 03 15 16.30										
5020	Wood, incl. wood stakes, 1" x 3"		C-1	900	.036	L.F.	.88	1.74		2.62	3.61
5050	2" x 4"			900	.036	"	.86	1.74		2.60	3.59
6000	Trench forms in floor, wood, 1 use			160	.200	SFCA	2.05	9.80		11.85	17.10
6050	2 use			175	.183		1.13	8.95		10.08	14.80
6100	3 use			180	.178		.82	8.70		9.52	14.10
6150	4 use			185	.173		.67	8.50		9.17	13.55
8760	Void form, corrugated fiberboard, 4" x 12", 4' long	G		3000	.011	S.F.	3.43	.52		3.95	4.56
8770	6" x 12", 4' long			3000	.011		4.59	.52		5.11	5.85
8780	1/4" thick hardboard protective cover for void form		2 Carp	1500	.011		.69	.55		1.24	1.59
	03 11 13.85 Forms In Place, Walls										
0010	**FORMS IN PLACE, WALLS**	R031113-10									
0100	Box out for wall openings, to 16" thick, to 10 S.F.		C-2	24	2	Ea.	27	100		127	182
0150	Over 10 S.F. (use perimeter)	R031113-40	"	280	.171	L.F.	2.32	8.60		10.92	15.60
0250	Brick shelf, 4" w, add to wall forms, use wall area above shelf										
0260	1 use	R031113-60	C-2	240	.200	SFCA	2.51	10.05		12.56	17.95
0300	2 use			275	.175		1.38	8.75		10.13	14.75
0350	4 use			300	.160		1	8.05		9.05	13.25
0500	Bulkhead, wood with keyway, 1 use, 2 piece			265	.181	L.F.	2.23	9.10		11.33	16.20
0600	Bulkhead forms with keyway, 1 piece expanded metal, 8" wall	G	C-1	1000	.032		1.41	1.57		2.98	3.92
0610	10" wall	G		800	.040		1.53	1.96		3.49	4.65
0620	12" wall	G		525	.061		1.84	2.99		4.83	6.55
0700	Buttress, to 8' high, 1 use		C-2	350	.137	SFCA	4.41	6.90		11.31	15.25
0750	2 use			430	.112		2.42	5.60		8.02	11.15
0800	3 use			460	.104		1.77	5.25		7.02	9.90
0850	4 use			480	.100		1.46	5		6.46	9.20
1000	Corbel or haunch, to 12" wide, add to wall forms, 1 use			150	.320	L.F.	2.40	16.05		18.45	27
1050	2 use			170	.282		1.32	14.20		15.52	23
1100	3 use			175	.274		.96	13.75		14.71	22
1150	4 use			180	.267		.78	13.40		14.18	21.50
2000	Wall, job-built plywood, to 8' high, 1 use			370	.130	SFCA	2.78	6.50		9.28	12.90
2050	2 use			435	.110		1.77	5.55		7.32	10.35
2100	3 use			495	.097		1.29	4.87		6.16	8.75
2150	4 use			505	.095		1.05	4.77		5.82	8.35
2400	Over 8' to 16' high, 1 use			280	.171		3.08	8.60		11.68	16.45
2450	2 use			345	.139		1.36	7		8.36	12.05
2500	3 use			375	.128		.97	6.45		7.42	10.80
2550	4 use			395	.122		.79	6.10		6.89	10.10
2700	Over 16' high, 1 use			235	.204		2.75	10.25		13	18.55
2750	2 use			290	.166		1.51	8.30		9.81	14.25
2800	3 use			315	.152		1.10	7.65		8.75	12.80
2850	4 use			330	.145		.89	7.30		8.19	12.05
4000	Radial, smooth curved, job-built plywood, 1 use			245	.196		2.59	9.85		12.44	17.75
4050	2 use			300	.160		1.42	8.05		9.47	13.70
4100	3 use			325	.148		1.04	7.40		8.44	12.35
4150	4 use			335	.143		.84	7.20		8.04	11.85
4200	Below grade, job-built plywood, 1 use			225	.213		2.93	10.70		13.63	19.40
4210	2 use			225	.213		1.61	10.70		12.31	18
4220	3 use			225	.213		1.35	10.70		12.05	17.70
4230	4 use			225	.213		.95	10.70		11.65	17.25
4300	Curved, 2' chords, job-built plywood, to 8' high, 1 use			290	.166		2.19	8.30		10.49	15

	03 11 13.85 Forms In Place, Walls	Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
4350	2 use	C-2	355	.135	SFCA	1.20	6.80		8	11.55
4400	3 use		385	.125		.88	6.25		7.13	10.40
4450	4 use		400	.120		.71	6.05		6.76	9.90
4500	Over 8' to 16' high, 1 use		290	.166		.94	8.30		9.24	13.65
4525	2 use		355	.135		.52	6.80		7.32	10.80
4550	3 use		385	.125		.37	6.25		6.62	9.85
4575	4 use		400	.120		.31	6.05		6.36	9.45
4600	Retaining wall, battered, job-built plyw'd, to 8' high, 1 use		300	.160		2.06	8.05		10.11	14.40
4650	2 use		355	.135		1.13	6.80		7.93	11.50
4700	3 use		375	.128		.82	6.45		7.27	10.65
4750	4 use		390	.123		.67	6.20		6.87	10.10
4900	Over 8' to 16' high, 1 use		240	.200		2.25	10.05		12.30	17.70
4950	2 use		295	.163		1.24	8.15		9.39	13.70
5000	3 use		305	.157		.90	7.90		8.80	12.95
5050	4 use		320	.150		.73	7.55		8.28	12.20
5500	For gang wall forming, 192 S.F. sections, deduct					10%	10%			
5550	384 S.F. sections, deduct					20%	20%			
7500	Lintel or sill forms, 1 use	1 Carp	30	.267		3.35	13.75		17.10	24.50
7520	2 use		34	.235		1.84	12.15		13.99	20.50
7540	3 use		36	.222		1.34	11.50		12.84	18.80
7560	4 use		37	.216		1.09	11.15		12.24	18.10
7800	Modular prefabricated plywood, based on 20 uses of purchased									
7820	forms, and 4 uses of bracing lumber									
7860	To 8' high	C-2	800	.060	SFCA	1.13	3.01		4.14	5.80
8060	Over 8' to 16' high		600	.080		1.19	4.02		5.21	7.40
8600	Pilasters, 1 use		270	.178		3.24	8.95		12.19	17.05
8620	2 use		330	.145		1.78	7.30		9.08	13
8640	3 use		370	.130		1.29	6.50		7.79	11.25
8660	4 use		385	.125		1.05	6.25		7.30	10.60
9010	Steel framed plywood, based on 50 uses of purchased									
9020	forms, and 4 uses of bracing lumber									
9060	To 8' high	C-2	600	.080	SFCA	.78	4.02		4.80	6.95
9260	Over 8' to 16' high		450	.107		.78	5.35		6.13	8.95
9460	Over 16' to 20' high		400	.120		.78	6.05		6.83	9.95
9475	For elevated walls, add						10%			
9480	For battered walls, 1 side battered, add					10%	10%			
9485	For battered walls, 2 sides battered, add					15%	15%			

03 11 16 – Architectural Cast-in-Place Concrete Forming

03 11 16.13 Concrete Form Liners

0010	**CONCRETE FORM LINERS**									
5750	Liners for forms (add to wall forms), ABS plastic									
5800	Aged wood, 4" wide, 1 use	1 Carp	256	.031	SFCA	3.43	1.61		5.04	6.20
5820	2 use		256	.031		1.89	1.61		3.50	4.52
5830	3 use		256	.031		1.37	1.61		2.98	3.95
5840	4 use		256	.031		1.11	1.61		2.72	3.67
5900	Fractured rope rib, 1 use		192	.042		5.05	2.15		7.20	8.80
5925	2 use		192	.042		2.77	2.15		4.92	6.30
5950	3 use		192	.042		2.01	2.15		4.16	5.45
6000	4 use		192	.042		1.63	2.15		3.78	5.05
6100	Ribbed, 3/4" deep x 1-1/2" OC, 1 use		224	.036		5.05	1.84		6.89	8.35
6125	2 use		224	.036		2.78	1.84		4.62	5.85
6150	3 use		224	.036		2.02	1.84		3.86	5

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	03 11 16.13 Concrete Form Liners	Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
6200	4 use	1 Carp	224	.036	SFCA	1.64	1.84		3.48	4.60
6300	Rustic brick pattern, 1 use		224	.036		3.58	1.84		5.42	6.75
6325	2 use		224	.036		1.97	1.84		3.81	4.96
6350	3 use		224	.036		1.43	1.84		3.27	4.37
6400	4 use		224	.036		1.16	1.84		3	4.07
6500	3/8" striated, random, 1 use		224	.036		3.51	1.84		5.35	6.65
6525	2 use		224	.036		1.93	1.84		3.77	4.91
6550	3 use		224	.036		1.40	1.84		3.24	4.33
6600	4 use		224	.036		1.14	1.84		2.98	4.04
6850	Random vertical rustication, 1 use		384	.021		6.80	1.08		7.88	9.15
6900	2 use		384	.021		3.74	1.08		4.82	5.75
6925	3 use		384	.021		2.72	1.08		3.80	4.62
6950	4 use		384	.021		2.21	1.08		3.29	4.06
7050	Wood, beveled edge, 3/4" deep, 1 use		384	.021	L.F.	.17	1.08		1.25	1.82
7100	1" deep, 1 use		384	.021	"	.27	1.08		1.35	1.93
7200	4" wide aged cedar, 1 use		256	.031	SFCA	3.58	1.61		5.19	6.40
7300	4" variable depth rough cedar		224	.036	"	4.98	1.84		6.82	8.30

03 11 19 – Insulating Concrete Forming

03 11 19.10 Insulating Forms, Left In Place

0010	**INSULATING FORMS, LEFT IN PLACE**									
0020	Forms includes layout, excludes rebar, embedments, bucks for openings,									
0030	scaffolding, wall bracing, concrete, and concrete placing.									
0040	S.F. is for exterior face but includes forms for both faces of wall									
0100	Straight blocks or panels, molded, walls up to 4' high									
0110	4" core wall	4 Carp	1984	.016	S.F.	3.61	.83		4.44	5.25
0120	6" core wall		1808	.018		3.63	.91		4.54	5.35
0130	8" core wall		1536	.021		3.76	1.08		4.84	5.75
0140	10" core wall		1152	.028		4.29	1.43		5.72	6.90
0150	12" core wall		992	.032		4.87	1.67		6.54	7.85
0200	90 degree corner blocks or panels, molded, walls up to 4' high									
0210	4" core wall	4 Carp	1880	.017	S.F.	3.72	.88		4.60	5.40
0220	6" core wall		1708	.019		3.74	.97		4.71	5.55
0230	8" core wall		1324	.024		3.87	1.25		5.12	6.15
0240	10" core wall		987	.032		4.47	1.67		6.14	7.45
0250	12" core wall		884	.036		4.79	1.87		6.66	8.10
0300	45 degree corner blocks or panels, molded, walls up to 4' high									
0310	4" core wall	4 Carp	1880	.017	S.F.	3.92	.88		4.80	5.65
0320	6" core wall		1712	.019		4.05	.97		5.02	5.90
0330	8" core wall		1324	.024		4.16	1.25		5.41	6.45
0400	T blocks or panels, molded, walls up to 4' high									
0420	6" core wall	4 Carp	1540	.021	S.F.	4.77	1.07		5.84	6.85
0430	8" core wall		1325	.024		4.82	1.25		6.07	7.20
0440	Non-standard corners or Ts requiring trimming & strapping		192	.167		4.87	8.60		13.47	18.40
0500	Radius blocks or panels, molded, walls up to 4' high, 6" core wall									
0520	5' to 10' diameter, molded blocks or panels	4 Carp	2400	.013	S.F.	5.90	.69		6.59	7.50
0530	10' to 15' diameter, requiring trimming and strapping, add		500	.064		4.43	3.31		7.74	9.85
0540	15'-1" to 30' diameter, requiring trimming and strapping, add		1200	.027		4.43	1.38		5.81	6.95
0550	30'-1" to 60' diameter, requiring trimming and strapping, add		1600	.020		4.43	1.03		5.46	6.45
0560	60'-1" to 100' diameter, requiring trimming and strapping, add		2800	.011		4.43	.59		5.02	5.75
0600	Additional labor for blocks/panels in higher walls (excludes scaffolding)									
0610	4'-1" to 9'-4" high, add						10%			
0620	9'-5" to 12'-0" high, add						20%			

03 11 19.10 Insulating Forms, Left In Place	Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0630 12'-1" to 20'-0" high, add						35%			
0640 Over 20'-0" high, add						55%			
0700 Taper block or panels, molded, single course									
0720 6" core wall	4 Carp	1600	.020	S.F.	3.90	1.03		4.93	5.85
0730 8" core wall	"	1392	.023	"	3.95	1.19		5.14	6.15
0800 ICF brick ledge (corbel) block or panels, molded, single course									
0820 6" core wall	4 Carp	1200	.027	S.F.	4.30	1.38		5.68	6.80
0830 8" core wall	"	1152	.028	"	4.39	1.43		5.82	7
0900 ICF curb (shelf) block or panels, molded, single course									
0930 8" core wall	4 Carp	688	.047	S.F.	3.71	2.40		6.11	7.70
0940 10" core wall	"	544	.059	"	4.24	3.04		7.28	9.25
0950 Wood form to hold back concrete to form shelf, 8" high	2 Carp	400	.040	L.F.	.85	2.07		2.92	4.07
1000 ICF half height block or panels, molded, single course									
1010 4" core wall	4 Carp	1248	.026	S.F.	4.70	1.32		6.02	7.15
1020 6" core wall		1152	.028		4.72	1.43		6.15	7.35
1030 8" core wall		942	.034		4.77	1.75		6.52	7.90
1040 10" core wall		752	.043		5.25	2.20		7.45	9.15
1050 12" core wall		648	.049		5.20	2.55		7.75	9.55
1100 ICF half height block/panels, made by field sawing full height block/panels									
1110 4" core wall	4 Carp	800	.040	S.F.	1.81	2.07		3.88	5.10
1120 6" core wall		752	.043		1.82	2.20		4.02	5.35
1130 8" core wall		600	.053		1.88	2.75		4.63	6.25
1140 10" core wall		496	.065		2.15	3.33		5.48	7.40
1150 12" core wall		400	.080		2.44	4.13		6.57	8.95
1200 Additional insulation inserted into forms between ties									
1210 1 layer (2" thick)	4 Carp	14000	.002	S.F.	1.03	.12		1.15	1.31
1220 2 layers (4" thick)		7000	.005		2.06	.24		2.30	2.63
1230 3 layers (6" thick)		4622	.007		3.09	.36		3.45	3.94
1300 EPS window/door bucks, molded, permanent									
1310 4" core wall (9" wide)	2 Carp	200	.080	L.F.	3.46	4.13		7.59	10.05
1320 6" core wall (11" wide)		200	.080		3.55	4.13		7.68	10.15
1330 8" core wall (13" wide)		176	.091		3.72	4.70		8.42	11.20
1340 10" core wall (15" wide)		152	.105		4.84	5.45		10.29	13.55
1350 12" core wall (17" wide)		152	.105		5.40	5.45		10.85	14.20
1360 2" x 6" temporary buck bracing (includes installing and removing)		400	.040		.71	2.07		2.78	3.91
1400 Wood window/door bucks (instead of EPS bucks), permanent									
1410 4" core wall (9" wide)	2 Carp	400	.040	L.F.	1.43	2.07		3.50	4.71
1420 6" core wall (11" wide)		400	.040		1.81	2.07		3.88	5.10
1430 8" core wall (13" wide)		350	.046		7.55	2.36		9.91	11.85
1440 10" core wall (15" wide)		300	.053		10.40	2.75		13.15	15.60
1450 12" core wall (17" wide)		300	.053		10.40	2.75		13.15	15.60
1460 2" x 6" temporary buck bracing (includes installing and removing)		800	.020		.71	1.03		1.74	2.34
1500 ICF alignment brace (incl. stiff-back, diagonal kick-back, work platform									
1501 bracket & guard rail post), fastened to one face of wall forms @ 6' O.C.									
1510 1st tier up to 10' tall									
1520 Rental of ICF alignment brace set, per set				Week	10			10	11
1530 Labor (includes installing & removing)	2 Carp	30	.533	Ea.		27.50		27.50	41.50
1560 2nd tier from 10' to 20' tall (excludes mason's scaffolding up to 10' high)									
1570 Rental of ICF alignment brace set, per set				Week	10			10	11
1580 Labor (includes installing & removing)	4 Carp	30	1.067	Ea.		55		55	83.50
1600 2" x 10" wood plank for work platform, 16' long									
1610 Plank material cost pro-rated over 20 uses				Ea.	1.15			1.15	1.26
1620 Labor (includes installing & removing)	2 Carp	48	.333	"		17.20		17.20	26

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03 11 Concrete Forming

03 11 19 – Insulating Concrete Forming

	03 11 19.10 Insulating Forms, Left In Place	Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
1700	2" x 4" lumber for top & middle rails for work platform									
1710	Railing material cost pro-rated over 20 uses				Ea.	.02			.02	.02
1720	Labor (includes installing & removing)	2 Carp	2400	.007	L.F.		.34		.34	.52
1800	ICF accessories									
1810	Wire clip to secure forms in place	2 Carp	2100	.008	Ea.	.39	.39		.78	1.03
1820	Masonry anchor embedment (excludes ties by mason)		1600	.010		4.23	.52		4.75	5.45
1830	Ledger anchor embedment (excludes timber hanger & screws)		128	.125		7.55	6.45		14	18.10
1900	See section 01 54 23.70 for mason's scaffolding components									
1910	See section 03 15 19.05 for anchor bolt sleeves									
1920	See section 03 15 19.10 for anchor bolts									
1930	See section 03 15 19.20 for dovetail anchor components									
1940	See section 03 15 19.30 for embedded inserts									
1950	See section 03 21 05.10 for rebar accessories									
1960	See section 03 21 11.60 for reinforcing bars in place									
1970	See section 03 31 13.35 for ready-mix concrete material									
1980	See section 03 31 13.70 for placement and consolidation of concrete									
1990	See section 06 05 23.60 for timber connectors									

03 11 19.60 Roof Deck Form Boards

0010	**ROOF DECK FORM BOARDS** R051223-50									
0050	Includes bulb tee sub-purlins @ 32-5/8" OC									
0070	Non-asbestos fiber cement, 5/16" thick	C-13	2950	.008	S.F.	3.10	.44	.03	3.57	4.15
0100	Fiberglass, 1" thick		2700	.009		3.63	.48	.04	4.15	4.80
0500	Wood fiber, 1" thick G		2700	.009		2.28	.48	.04	2.80	3.31

03 11 23 – Permanent Stair Forming

03 11 23.75 Forms In Place, Stairs

0010	**FORMS IN PLACE, STAIRS** R031113-40									
0015	(Slant length x width), 1 use	C-2	165	.291	S.F.	6.10	14.60		20.70	28.50
0050	2 use R031113-60		170	.282		3.47	14.20		17.67	25.50
0100	3 use		180	.267		2.59	13.40		15.99	23.50
0150	4 use		190	.253		2.15	12.70		14.85	21.50
1000	Alternate pricing method (1.0 L.F./S.F.), 1 use		100	.480	LF Rsr	6.10	24		30.10	43
1050	2 use		105	.457		3.47	23		26.47	38.50
1100	3 use		110	.436		2.59	22		24.59	36
1150	4 use		115	.417		2.15	21		23.15	34
2000	Stairs, cast on sloping ground (length x width), 1 use		220	.218	S.F.	2.43	10.95		13.38	19.30
2025	2 use		232	.207		1.34	10.40		11.74	17.15
2050	3 use		244	.197		.97	9.90		10.87	16
2100	4 use		256	.188		.79	9.40		10.19	15.10

03 15 Concrete Accessories

03 15 05 – Concrete Forming Accessories

03 15 05.12 Chamfer Strips

0010	**CHAMFER STRIPS**									
2000	Polyvinyl chloride, 1/2" wide with leg	1 Carp	535	.015	L.F.	.72	.77		1.49	1.96
2200	3/4" wide with leg		525	.015		.79	.79		1.58	2.06
2400	1" radius with leg		515	.016		.82	.80		1.62	2.11
2800	2" radius with leg		500	.016		1.53	.83		2.36	2.93
5000	Wood, 1/2" wide		535	.015		.13	.77		.90	1.31
5200	3/4" wide		525	.015		.17	.79		.96	1.38
5400	1" wide		515	.016		.27	.80		1.07	1.51

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03 15 Concrete Accessories

03 15 05 – Concrete Forming Accessories

	03 15 05.85 Stair Tread Inserts		Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0135	Extruded nosing insert, black abrasive strips, continuous anchor										
0140	Aluminum, 3" wide x 3' long		1 Cefi	64	.125	Ea.	35.50	6.10		41.60	48.50
0150	4' long			60	.133		49	6.50		55.50	63.50
0160	5' long			56	.143		64.50	7		71.50	81.50
0165	Extruded nosing insert, black abrasive strips, pre-drilled, incl. screws										
0170	Aluminum, 3" wide x 3' long		1 Cefi	32	.250	Ea.	44.50	12.25		56.75	67
0180	4' long			31	.258		59	12.60		71.60	83.50
0190	5' long			30	.267		79.50	13.05		92.55	107
	03 15 05.95 Wall and Foundation Form Accessories										
0010	**WALL AND FOUNDATION FORM ACCESSORIES**										
2000	Footings, turnbuckle form aligner	G				Ea.	16.80			16.80	18.50
2050	Spreaders for footer, adjustable	G				"	26.50			26.50	29
3000	Form oil, up to 1200 S.F./gallon coverage					Gal.	14.20			14.20	15.65
3050	Up to 800 S.F./gallon					"	22.50			22.50	24.50
3500	Form patches, 1-3/4" diameter					C	28.50			28.50	31.50
3550	2-3/4" diameter					"	49			49	54
4000	Nail stakes, 3/4" diameter, 18" long	G				Ea.	2			2	2.20
4050	24" long	G					2.68			2.68	2.95
4200	30" long	G					3.38			3.38	3.72
4250	36" long	G					4.26			4.26	4.69

03 15 13 – Waterstops

03 15 13.50 Waterstops

0010	**WATERSTOPS**, PVC and Rubber										
0020	PVC, ribbed 3/16" thick, 4" wide		1 Carp	155	.052	L.F.	1.43	2.67		4.10	5.60
0050	6" wide			145	.055		2.47	2.85		5.32	7.05
0500	With center bulb, 6" wide, 3/16" thick			135	.059		2.56	3.06		5.62	7.45
0550	3/8" thick			130	.062		4.59	3.18		7.77	9.85
0600	9" wide x 3/8" thick			125	.064		7.80	3.31		11.11	13.60
0800	Dumbbell type, 6" wide, 3/16" thick			150	.053		3.63	2.75		6.38	8.15
0850	3/8" thick			145	.055		3.90	2.85		6.75	8.60
1000	9" wide, 3/8" thick, plain			130	.062		6.30	3.18		9.48	11.70
1050	Center bulb			130	.062		8.95	3.18		12.13	14.65
1250	Ribbed type, split, 3/16" thick, 6" wide			145	.055		2.14	2.85		4.99	6.65
1300	3/8" thick			130	.062		4.90	3.18		8.08	10.20
2000	Rubber, flat dumbbell, 3/8" thick, 6" wide			145	.055		4.64	2.85		7.49	9.40
2050	9" wide			135	.059		10.40	3.06		13.46	16.10
2500	Flat dumbbell split, 3/8" thick, 6" wide			145	.055		2.14	2.85		4.99	6.65
2550	9" wide			135	.059		4.90	3.06		7.96	10.05
3000	Center bulb, 1/4" thick, 6" wide			145	.055		6.85	2.85		9.70	11.85
3050	9" wide			135	.059		14.45	3.06		17.51	20.50
3500	Center bulb split, 3/8" thick, 6" wide			145	.055		6.05	2.85		8.90	10.95
3550	9" wide			135	.059		10.10	3.06		13.16	15.80
5000	Waterstop fittings, rubber, flat										
5010	Dumbbell or center bulb, 3/8" thick,										
5200	Field union, 6" wide		1 Carp	50	.160	Ea.	33	8.25		41.25	49
5250	9" wide			50	.160		35	8.25		43.25	51
5500	Flat cross, 6" wide			30	.267		52	13.75		65.75	78
5550	9" wide			30	.267		71	13.75		84.75	99
6000	Flat tee, 6" wide			30	.267		50	13.75		63.75	76
6050	9" wide			30	.267		65.50	13.75		79.25	93
6500	Flat ell, 6" wide			40	.200		49	10.35		59.35	69.50
6550	9" wide			40	.200		60.50	10.35		70.85	82.50

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03 15 Concrete Accessories

03 15 19 – Cast-In Concrete Anchors

			Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
03 15 19.20 Dovetail Anchor System											
3000	Dovetail furring anchors, corrugated, galvanized, 1-1/2" long, 16 ga.	G	1 Bric	10.50	.762	C	25	39		64	87
3100	12 ga.	G		10.50	.762		33	39		72	96
6000	Dovetail stone panel anchors, galvanized, 1/8" x 1" wide, 3-1/2" long	G		10.50	.762		100	39		139	171
6100	1/4" x 1" wide	G		10.50	.762		184	39		223	262
03 15 19.30 Inserts											
0010	**INSERTS**										
1000	Inserts, slotted nut type for 3/4" bolts, 4" long	G	1 Carp	84	.095	Ea.	21	4.92		25.92	30.50
2100	6" long	G		84	.095		23.50	4.92		28.42	33
2150	8" long	G		84	.095		31	4.92		35.92	41.50
2200	Slotted, strap type, 4" long	G		84	.095		22.50	4.92		27.42	32
2250	6" long	G		84	.095		25.50	4.92		30.42	35.50
2300	8" long	G		84	.095		33.50	4.92		38.42	44.50
2350	Strap for slotted insert, 4" long	G		84	.095		12.05	4.92		16.97	20.50
4100	6" long	G		84	.095		13.05	4.92		17.97	22
4150	8" long	G		84	.095		16.25	4.92		21.17	25.50
4200	10" long	G		84	.095		19.70	4.92		24.62	29
7000	Loop ferrule type										
7100	1/4" diameter bolt	G	1 Carp	84	.095	Ea.	2.38	4.92		7.30	10.05
7350	7/8" diameter bolt	G	"	84	.095	"	11.05	4.92		15.97	19.65
9000	Wedge type										
9100	For 3/4" diameter bolt	G	1 Carp	60	.133	Ea.	9.80	6.90		16.70	21
9800	Cut washers, black										
9900	3/4" bolt	G				Ea.	1.27			1.27	1.40
9950	For galvanized inserts, add						30%				
03 15 19.45 Machinery Anchors											
0010	**MACHINERY ANCHORS**, heavy duty, incl. sleeve, floating base nut,										
0020	lower stud & coupling nut, fiber plug, connecting stud, washer & nut.										
0030	For flush mounted embedment in poured concrete heavy equip. pads.										
0200	Stud & bolt, 1/2" diameter	G	E-16	40	.400	Ea.	57.50	23	2.39	82.89	103
0300	5/8" diameter	G		35	.457		67	26	2.73	95.73	118
0500	3/4" diameter	G		30	.533		79.50	30.50	3.19	113.19	140
0600	7/8" diameter	G		25	.640		89.50	36.50	3.83	129.83	161
0800	1" diameter	G		20	.800		89.50	45.50	4.78	139.78	176
0900	1-1/4" diameter	G		15	1.067		128	61	6.40	195.40	245

03 21 Reinforcement Bars

03 21 05 – Reinforcing Steel Accessories

03 21 05.10 Rebar Accessories											
0010	**REBAR ACCESSORIES**										
0030	Steel & plastic made from recycled materials										
0100	Beam bolsters (BB), lower, 1-1/2" high, plain steel	G				C.L.F.	36			36	40
0102	Galvanized	G					43.50			43.50	48
0104	Stainless tipped legs	G					490			490	540
0106	Plastic tipped legs	G					51.50			51.50	56.50
0108	Epoxy dipped	G					91			91	100
0110	2" high, plain	G					45.50			45.50	50
0120	Galvanized	G					54.50			54.50	60
0140	Stainless tipped legs	G					500			500	550
0160	Plastic tipped legs	G					60			60	66
0162	Epoxy dipped	G					103			103	113

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03 21 05.10 Rebar Accessories			Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0200	Upper (BBU), 1-1/2" high, plain steel	G				C.L.F.	85.50			85.50	94
0210	3" high	G					97			97	107
0500	Slab bolsters, continuous (SB), 1" high, plain steel	G					31			31	34.50
0502	Galvanized	G					40.50			40.50	45
0504	Stainless tipped legs	G					485			485	535
0506	Plastic tipped legs	G					45			45	49.50
0510	2" high, plain steel	G					38.50			38.50	42.50
0515	Galvanized	G					51			51	56
0520	Stainless tipped legs	G					495			495	545
0525	Plastic tipped legs	G					52			52	57
0530	For bolsters with wire runners (SBR), add	G					42.50			42.50	46.50
0540	For bolsters with plates (SBP), add	G					99			99	109
0700	Bag ties, 16 ga., plain, 4" long	G				C	4.17			4.17	4.59
0710	5" long	G					5.20			5.20	5.70
0720	6" long	G					4.18			4.18	4.60
0730	7" long	G					5.15			5.15	5.70
1200	High chairs, individual (HC), 3" high, plain steel	G					63			63	69
1202	Galvanized	G					79.50			79.50	87.50
1204	Stainless tipped legs	G					505			505	560
1206	Plastic tipped legs	G					68			68	75
1210	5" high, plain	G					91.50			91.50	101
1212	Galvanized	G					111			111	122
1214	Stainless tipped legs	G					540			540	595
1216	Plastic tipped legs	G					101			101	111
1220	8" high, plain	G					137			137	150
1222	Galvanized	G					164			164	180
1224	Stainless tipped legs	G					580			580	640
1226	Plastic tipped legs	G					148			148	163
1230	12" high, plain	G					325			325	360
1232	Galvanized	G					405			405	445
1234	Stainless tipped legs	G					750			750	825
1236	Plastic tipped legs	G					350			350	385
1400	Individual high chairs, with plate (HCP), 5" high	G					186			186	204
1410	8" high	G					257			257	282
1500	Bar chair (BC), 1-1/2" high, plain steel	G					43			43	47
1520	Galvanized	G					45.50			45.50	50
1530	Stainless tipped legs	G					500			500	550
1540	Plastic tipped legs	G					42.50			42.50	46.50
1700	Continuous high chairs (CHC), legs 8" OC, 4" high, plain steel	G				C.L.F.	55			55	60.50
1705	Galvanized	G					67			67	73.50
1710	Stainless tipped legs	G					515			515	565
1715	Plastic tipped legs	G					75.50			75.50	83
1718	Epoxy dipped	G					92			92	101
1720	6" high, plain	G					73			73	80.50
1725	Galvanized	G					91			91	100
1730	Stainless tipped legs	G					535			535	590
1735	Plastic tipped legs	G					97.50			97.50	107
1738	Epoxy dipped	G					125			125	138
1740	8" high, plain	G					105			105	115
1745	Galvanized	G					131			131	144
1750	Stainless tipped legs	G					570			570	625
1755	Plastic tipped legs	G					126			126	139
1758	Epoxy dipped	G					163			163	179

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03 21 11.60 Reinforcing In Place		Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0010	**REINFORCING IN PLACE**, 50-60 ton lots, A615 Grade 60 R032110-10									
0020	Includes labor, but not material cost, to install accessories									
0030	Made from recycled materials									
0100	Beams & Girders, #3 to #7 G	4 Rodm	1.60	20	Ton	1,025	1,100		2,125	2,775
0150	#8 to #18 R032110-20 G		2.70	11.852		1,025	650		1,675	2,100
0200	Columns, #3 to #7 G		1.50	21.333		1,025	1,175		2,200	2,900
0250	#8 to #18 G		2.30	13.913		1,025	765		1,790	2,275
0300	Spirals, hot rolled, 8" to 15" diameter G		2.20	14.545		1,675	800		2,475	3,050
0320	15" to 24" diameter R032110-40 G		2.20	14.545		1,600	800		2,400	2,975
0330	24" to 36" diameter G		2.30	13.913		1,525	765		2,290	2,825
0340	36" to 48" diameter R032110-50 G		2.40	13.333		1,450	730		2,180	2,700
0360	48" to 64" diameter G		2.50	12.800		1,600	700		2,300	2,825
0380	64" to 84" diameter R032110-70 G		2.60	12.308		1,675	675		2,350	2,875
0390	84" to 96" diameter G		2.70	11.852		1,750	650		2,400	2,900
0400	Elevated slabs, #4 to #7 R032110-80 G		2.90	11.034		1,025	605		1,630	2,050
0500	Footings, #4 to #7 G		2.10	15.238		1,025	835		1,860	2,400
0550	#8 to #18 G		3.60	8.889		1,025	490		1,515	1,875
0600	Slab on grade, #3 to #7 G		2.30	13.913		1,025	765		1,790	2,275
0700	Walls, #3 to #7 G		3	10.667		1,025	585		1,610	2,000
0750	#8 to #18 G		4	8		1,025	440		1,465	1,800
0900	For other than 50-60 ton lots									
1000	Under 10 ton job, #3 to #7, add					25%	10%			
1010	#8 to #18, add					20%	10%			
1050	10-50 ton job, #3 to #7, add					10%				
1060	#8 to #18, add					5%				
1100	60-100 ton job, #3 to #7, deduct					5%				
1110	#8 to #18, deduct					10%				
1150	Over 100 ton job, #3 to #7, deduct					10%				
1160	#8 to #18, deduct					15%				
1200	Reinforcing in place, A615 Grade 75, add G				Ton	97.50			97.50	107
1220	Grade 90, add					132			132	145
2000	Unloading & sorting, add to above	C-5	100	.560			30.50	5.80	36.30	53
2200	Crane cost for handling, 90 picks/day, up to 1.5 tons/bundle, add to above		135	.415			22.50	4.31	26.81	39
2210	1.0 ton/bundle		92	.609			33.50	6.30	39.80	57.50
2220	0.5 ton/bundle		35	1.600			87.50	16.60	104.10	150
2400	Dowels, 2 feet long, deformed, #3 G	2 Rodm	520	.031	Ea.	.43	1.69		2.12	3.02
2410	#4 G		480	.033		.76	1.83		2.59	3.60
2420	#5 G		435	.037		1.18	2.02		3.20	4.35
2430	#6 G		360	.044		1.70	2.44		4.14	5.55
2450	Longer and heavier dowels, add G		725	.022	Lb.	.57	1.21		1.78	2.45
2500	Smooth dowels, 12" long, 1/4" or 3/8" diameter G		140	.114	Ea.	.76	6.25		7.01	10.35
2520	5/8" diameter G		125	.128		1.33	7		8.33	12.05
2530	3/4" diameter G		110	.145		1.64	8		9.64	13.85
2600	Dowel sleeves for CIP concrete, 2-part system									
2610	Sleeve base, plastic, for 5/8" smooth dowel sleeve, fasten to edge form	1 Rodm	200	.040	Ea.	.55	2.19		2.74	3.93
2615	Sleeve, plastic, 12" long, for 5/8" smooth dowel, snap onto base		400	.020		1.46	1.10		2.56	3.27
2620	Sleeve base, for 3/4" smooth dowel sleeve		175	.046		.54	2.51		3.05	4.38
2625	Sleeve, 12" long, for 3/4" smooth dowel		350	.023		1.27	1.25		2.52	3.30
2630	Sleeve base, for 1" smooth dowel sleeve		150	.053		.70	2.93		3.63	5.20
2635	Sleeve, 12" long, for 1" smooth dowel		300	.027		1.44	1.46		2.90	3.79
2700	Dowel caps, visual warning only, plastic, #3 to #8	2 Rodm	800	.020		.32	1.10		1.42	2.01
2720	#8 to #18		750	.021		.84	1.17		2.01	2.69

03 21 Reinforcement Bars

03 21 11 – Plain Steel Reinforcement Bars

	03 21 11.60 Reinforcing In Place		Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
2750	Impalement protective, plastic, #4 to #9		2 Rodm	800	.020	Ea.	1.16	1.10		2.26	2.94

03 21 13 – Galvanized Reinforcement Steel Bars

03 21 13.10 Galvanized Reinforcing

0010	**GALVANIZED REINFORCING**										
0150	Add to plain steel rebar pricing for galvanized rebar					Ton	490			490	540

03 21 16 – Epoxy-Coated Reinforcement Steel Bars

03 21 16.10 Epoxy-Coated Reinforcing

0010	**EPOXY-COATED REINFORCING**										
0100	Add to plain steel rebar pricing for epoxy-coated rebar					Ton	840			840	925

03 21 21 – Composite Reinforcement Bars

03 21 21.11 Glass Fiber-Reinforced Polymer Reinf. Bars

0010	**GLASS FIBER-REINFORCED POLYMER REINFORCEMENT BARS**										
0020	Includes labor, but not material cost, to install accessories										
0050	#2 bar, .043 lb./L.F.		4 Rodm	9500	.003	L.F.	.41	.18		.59	.73
0100	#3 bar, .092 lb./L.F.			9300	.003		.65	.19		.84	1.01
0150	#4 bar, .160 lb./L.F.			9100	.004		.94	.19		1.13	1.32
0200	#5 bar, .258 lb./L.F.			8700	.004		1.12	.20		1.32	1.54
0250	#6 bar, .372 lb./L.F.			8300	.004		1.88	.21		2.09	2.39
0300	#7 bar, .497 lb./L.F.			7900	.004		2.54	.22		2.76	3.13
0350	#8 bar, .620 lb./L.F.			7400	.004		2.44	.24		2.68	3.04
0400	#9 bar, .800 lb./L.F.			6800	.005		4.23	.26		4.49	5.05
0450	#10 bar, 1.08 lb./L.F.			5800	.006		3.83	.30		4.13	4.67
0500	For bends, add per bend					Ea.	1.61			1.61	1.77

03 22 Fabric and Grid Reinforcing

03 22 11 – Plain Welded Wire Fabric Reinforcing

03 22 11.10 Plain Welded Wire Fabric

0010	**PLAIN WELDED WIRE FABRIC** ASTM A185	R032205-30									
0020	Includes labor, but not material cost, to install accessories										
0030	Made from recycled materials										
0050	Sheets										
0100	6 x 6 - W1.4 x W1.4 (10 x 10) 21 lb./C.S.F.	G	2 Rodm	35	.457	C.S.F.	15.90	25		40.90	55.50
0200	6 x 6 - W2.1 x W2.1 (8 x 8) 30 lb./C.S.F.	G		31	.516		20	28.50		48.50	65
0300	6 x 6 - W2.9 x W2.9 (6 x 6) 42 lb./C.S.F.	G		29	.552		26	30.50		56.50	74.50
0400	6 x 6 - W4 x W4 (4 x 4) 58 lb./C.S.F.	G		27	.593		40.50	32.50		73	93.50
0500	4 x 4 - W1.4 x W1.4 (10 x 10) 31 lb./C.S.F.	G		31	.516		24	28.50		52.50	69
0600	4 x 4 - W2.1 x W2.1 (8 x 8) 44 lb./C.S.F.	G		29	.552		29.50	30.50		60	78.50
0650	4 x 4 - W2.9 x W2.9 (6 x 6) 61 lb./C.S.F.	G		27	.593		47.50	32.50		80	102
0700	4 x 4 - W4 x W4 (4 x 4) 85 lb./C.S.F.	G		25	.640		59.50	35		94.50	119
0750	Rolls										
0800	2 x 2 - #14 galv., 21 lb./C.S.F., beam & column wrap	G	2 Rodm	6.50	2.462	C.S.F.	49	135		184	258
0900	2 x 2 - #12 galv. for gunite reinforcing	G	"	6.50	2.462	"	70.50	135		205.50	282

03 22 13 – Galvanized Welded Wire Fabric Reinforcing

03 22 13.10 Galvanized Welded Wire Fabric

0010	**GALVANIZED WELDED WIRE FABRIC**										
0100	Add to plain welded wire pricing for galvanized welded wire					Lb.	.24			.24	.27

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03 23 Stressed Tendon Reinforcing

03 23 05 – Prestressing Tendons

	03 23 05.50 Prestressing Steel	Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
3235	Stressing	C-4A	4920	.003	S.F.		.18	.01	.19	.28
3240	42" OC, placing	2 Rodm	4190	.004		.53	.21		.74	.91
3245	Stressing	C-4A	5410	.003			.16	.01	.17	.26
3250	48" OC, placing	2 Rodm	4520	.004		.48	.19		.67	.82
3255	Stressing	C-4A	5790	.003			.15	.01	.16	.24
3260	30' x 50' slab, strands @ 36" OC, placing	2 Rodm	4300	.004		.57	.20		.77	.94
3265	Stressing	C-4A	5650	.003			.16	.01	.17	.24
3270	42" OC, placing	2 Rodm	4720	.003		.51	.19		.70	.84
3275	Stressing	C-4A	6150	.003			.14	.01	.15	.23
3280	48" OC, placing	2 Rodm	5240	.003		.45	.17		.62	.74
3285	Stressing	C-4A	6760	.002			.13	.01	.14	.21

03 24 Fibrous Reinforcing

03 24 05 – Reinforcing Fibers

03 24 05.30 Synthetic Fibers

0010	**SYNTHETIC FIBERS**									
0100	Synthetic fibers, add to concrete				Lb.	4.71			4.71	5.20
0110	1-1/2 lb./C.Y.				C.Y.	7.30			7.30	8

03 24 05.70 Steel Fibers

0010	**STEEL FIBERS**									
0140	ASTM A850, Type V, continuously deformed, 1-1/2" long x 0.045" diam.									
0150	Add to price of ready mix concrete	G			Lb.	1.25			1.25	1.38
0205	Alternate pricing, dosing at 5 lb./C.Y., add to price of RMC	G			C.Y.	6.25			6.25	6.90
0210	10 lb./C.Y.	G				12.50			12.50	13.75
0215	15 lb./C.Y.	G				18.75			18.75	20.50
0220	20 lb./C.Y.	G				25			25	27.50
0225	25 lb./C.Y.	G				31.50			31.50	34.50
0230	30 lb./C.Y.	G				37.50			37.50	41.50
0235	35 lb./C.Y.	G				44			44	48
0240	40 lb./C.Y.	G				50			50	55
0250	50 lb./C.Y.	G				62.50			62.50	69
0275	75 lb./C.Y.	G				94			94	103
0300	100 lb./C.Y.	G				125			125	138

03 30 Cast-In-Place Concrete

03 30 53 – Miscellaneous Cast-In-Place Concrete

03 30 53.40 Concrete In Place

0010	**CONCRETE IN PLACE**	R033105-10								
0020	Including forms (4 uses), Grade 60 rebar, concrete (Portland cement	R033105-20								
0050	Type I), placement and finishing unless otherwise indicated	R033105-50								
0300	Beams (3500 psi), 5 kip/L.F., 10' span	R033105-65	C-14A	15.62	12.804	C.Y.	350	660	55.50	1,065.50	1,450
0350	25' span	R033105-70	"	18.55	10.782		365	555	47	967	1,300
0500	Chimney foundations (5000 psi), over 5 C.Y.	R033105-85	C-14C	32.22	3.476		178	170	.83	348.83	455
0510	(3500 psi), under 5 C.Y.	R033053-50	"	23.71	4.724		206	232	1.13	439.13	580
0700	Columns, square (4000 psi), 12" x 12", up to 1% reinforcing by area		C-14A	11.96	16.722		390	860	72.50	1,322.50	1,800
0720	Up to 2% reinforcing by area			10.13	19.743		605	1,025	86	1,716	2,275
0740	Up to 3% reinforcing by area			9.03	22.148		895	1,150	96.50	2,141.50	2,825
0800	16" x 16", up to 1% reinforcing by area			16.22	12.330		315	635	53.50	1,003.50	1,375
0820	Up to 2% reinforcing by area			12.57	15.911		515	820	69	1,404	1,875

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	03 30 53.40 Concrete In Place	Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0840	Up to 3% reinforcing by area	C-14A	10.25	19.512	C.Y.	790	1,000	85	1,875	2,500
0900	24" x 24", up to 1% reinforcing by area		23.66	8.453		268	435	37	740	990
0920	Up to 2% reinforcing by area		17.71	11.293		465	580	49	1,094	1,450
0940	Up to 3% reinforcing by area		14.15	14.134		725	725	61.50	1,511.50	1,975
1000	36" x 36", up to 1% reinforcing by area		33.69	5.936		239	305	26	570	750
1020	Up to 2% reinforcing by area		23.32	8.576		410	440	37.50	887.50	1,150
1040	Up to 3% reinforcing by area		17.82	11.223		675	575	49	1,299	1,675
1100	Columns, round (4000 psi), tied, 12" diameter, up to 1% reinforcing by area		20.97	9.537		390	490	41.50	921.50	1,225
1120	Up to 2% reinforcing by area		15.27	13.098		605	675	57	1,337	1,750
1140	Up to 3% reinforcing by area		12.11	16.515		880	850	72	1,802	2,325
1200	16" diameter, up to 1% reinforcing by area		31.49	6.351		325	325	27.50	677.50	885
1220	Up to 2% reinforcing by area		19.12	10.460		545	540	45.50	1,130.50	1,450
1240	Up to 3% reinforcing by area		13.77	14.524		800	745	63	1,608	2,075
1300	20" diameter, up to 1% reinforcing by area		41.04	4.873		320	251	21	592	760
1320	Up to 2% reinforcing by area		24.05	8.316		520	430	36	986	1,250
1340	Up to 3% reinforcing by area		17.01	11.758		795	605	51	1,451	1,850
1400	24" diameter, up to 1% reinforcing by area		51.85	3.857		300	198	16.80	514.80	650
1420	Up to 2% reinforcing by area		27.06	7.391		515	380	32	927	1,175
1440	Up to 3% reinforcing by area		18.29	10.935		775	560	47.50	1,382.50	1,750
1500	36" diameter, up to 1% reinforcing by area		75.04	2.665		305	137	11.60	453.60	555
1520	Up to 2% reinforcing by area		37.49	5.335		495	274	23	792	985
1540	Up to 3% reinforcing by area		22.84	8.757		760	450	38	1,248	1,550
1900	Elevated slab (4000 psi), flat slab with drops, 125 psf Sup. Load, 20' span	C-14B	38.45	5.410		290	278	22.50	590.50	765
1950	30' span		50.99	4.079		305	209	17.10	531.10	670
2100	Flat plate, 125 psf Sup. Load, 15' span		30.24	6.878		270	355	29	654	865
2150	25' span		49.60	4.194		279	215	17.55	511.55	650
2300	Waffle const., 30" domes, 125 psf Sup. Load, 20' span		37.07	5.611		310	288	23.50	621.50	800
2350	30' span		44.07	4.720		285	242	19.80	546.80	700
2500	One way joists, 30" pans, 125 psf Sup. Load, 15' span		27.38	7.597		410	390	32	832	1,075
2550	25' span		31.15	6.677		375	345	28	748	960
2700	One way beam & slab, 125 psf Sup. Load, 15' span		20.59	10.102		288	520	42.50	850.50	1,150
2750	25' span		28.36	7.334		274	375	30.50	679.50	905
2900	Two way beam & slab, 125 psf Sup. Load, 15' span		24.04	8.652		279	445	36.50	760.50	1,025
2950	25' span		35.87	5.799		243	298	24.50	565.50	745
3100	Elevated slabs, flat plate, including finish, not									
3110	including forms or reinforcing									
3150	Regular concrete (4000 psi), 4" slab	C-8	2613	.021	S.F.	1.71	.98	.32	3.01	3.71
3200	6" slab		2585	.022		2.50	.99	.33	3.82	4.59
3250	2-1/2" thick floor fill		2685	.021		1.11	.95	.31	2.37	3.01
3300	Lightweight, 110 #/C.F., 2-1/2" thick floor fill		2585	.022		1.21	.99	.33	2.53	3.17
3400	Cellular concrete, 1-5/8" fill, under 5000 S.F.		2000	.028		.83	1.28	.42	2.53	3.28
3450	Over 10,000 S.F.		2200	.025		.80	1.16	.38	2.34	3.04
3500	Add per floor for 3 to 6 stories high		31800	.002			.08	.03	.11	.15
3520	For 7 to 20 stories high		21200	.003			.12	.04	.16	.22
3540	Equipment pad (3000 psi), 3' x 3' x 6" thick	C-14H	45	1.067	Ea.	46.50	53.50	.59	100.59	133
3550	4' x 4' x 6" thick		30	1.600		72.50	80.50	.88	153.88	201
3560	5' x 5' x 8" thick		18	2.667		132	134	1.47	267.47	350
3570	6' x 6' x 8" thick		14	3.429		181	172	1.89	354.89	460
3580	8' x 8' x 10" thick		8	6		385	300	3.30	688.30	880
3590	10' x 10' x 12" thick		5	9.600		665	485	5.30	1,155.30	1,475
3800	Footings (3000 psi), spread under 1 C.Y.	C-14C	28	4	C.Y.	193	196	.96	389.96	510
3825	1 C.Y. to 5 C.Y.		43	2.605		227	128	.63	355.63	445
3850	Over 5 C.Y.		75	1.493		212	73	.36	285.36	345

	03 30 53.40 Concrete In Place	Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
3900	Footings, strip (3000 psi), 18" x 9", unreinforced	C-14L	40	2.400	C.Y.	149	115	.67	264.67	340
3920	18" x 9", reinforced	C-14C	35	3.200		174	157	.77	331.77	430
3925	20" x 10", unreinforced	C-14L	45	2.133		146	103	.60	249.60	315
3930	20" x 10", reinforced	C-14C	40	2.800		166	137	.67	303.67	390
3935	24" x 12", unreinforced	C-14L	55	1.745		143	84	.49	227.49	286
3940	24" x 12", reinforced	C-14C	48	2.333		164	114	.56	278.56	355
3945	36" x 12", unreinforced	C-14L	70	1.371		139	66	.38	205.38	253
3950	36" x 12", reinforced	C-14C	60	1.867		158	91.50	.45	249.95	310
4000	Foundation mat (3000 psi), under 10 C.Y.		38.67	2.896		231	142	.70	373.70	470
4050	Over 20 C.Y.		56.40	1.986		205	97.50	.48	302.98	375
4200	Wall, free-standing (3000 psi), 8" thick, 8' high	C-14D	45.83	4.364		187	223	19	429	560
4250	14' high		27.26	7.337		218	375	32	625	840
4260	12" thick, 8' high		64.32	3.109		170	159	13.55	342.55	440
4270	14' high		40.01	4.999		180	256	21.50	457.50	605
4300	15" thick, 8' high		80.02	2.499		164	128	10.85	302.85	385
4350	12' high		51.26	3.902		164	200	16.95	380.95	500
4500	18' high		48.85	4.094		184	210	17.80	411.80	535
4520	Handicap access ramp (4000 psi), railing both sides, 3' wide	C-14H	14.58	3.292	L.F.	370	166	1.81	537.81	655
4525	5' wide		12.22	3.928		380	198	2.16	580.16	720
4530	With 6" curb and rails both sides, 3' wide		8.55	5.614		380	282	3.09	665.09	845
4535	5' wide		7.31	6.566		385	330	3.61	718.61	930
4650	Slab on grade (3500 psi), not including finish, 4" thick	C-14E	60.75	1.449	C.Y.	147	72	.43	219.43	270
4700	6" thick	"	92	.957	"	141	47.50	.29	188.79	228
4701	Thickened slab edge (3500 psi), for slab on grade poured									
4702	monolithically with slab; depth is in addition to slab thickness;									
4703	formed vertical outside edge, earthen bottom and inside slope									
4705	8" deep x 8" wide bottom, unreinforced	C-14L	2190	.044	L.F.	3.99	2.11	.01	6.11	7.60
4710	8" x 8", reinforced	C-14C	1670	.067		6.40	3.29	.02	9.71	12.05
4715	12" deep x 12" wide bottom, unreinforced	C-14L	1800	.053		8.20	2.56	.01	10.77	12.90
4720	12" x 12", reinforced	C-14C	1310	.086		12.60	4.19	.02	16.81	20
4725	16" deep x 16" wide bottom, unreinforced	C-14L	1440	.067		13.90	3.20	.02	17.12	20
4730	16" x 16", reinforced	C-14C	1120	.100		19.15	4.90	.02	24.07	28.50
4735	20" deep x 20" wide bottom, unreinforced	C-14L	1150	.083		21	4.01	.02	25.03	29
4740	20" x 20", reinforced	C-14C	920	.122		28	5.95	.03	33.98	39.50
4745	24" deep x 24" wide bottom, unreinforced	C-14L	930	.103		30	4.96	.03	34.99	40.50
4750	24" x 24", reinforced	C-14C	740	.151		38.50	7.40	.04	45.94	53.50
4751	Slab on grade (3500 psi), incl. troweled finish, not incl. forms									
4760	or reinforcing, over 10,000 S.F., 4" thick	C-14F	3425	.021	S.F.	1.62	.98	.01	2.61	3.24
4820	6" thick		3350	.021		2.37	1	.01	3.38	4.11
4840	8" thick		3184	.023		3.24	1.05	.01	4.30	5.15
4900	12" thick		2734	.026		4.87	1.23	.01	6.11	7.20
4950	15" thick		2505	.029		6.10	1.34	.01	7.45	8.70
5000	Slab on grade (3000 psi), incl. broom finish, not incl. forms									
5001	or reinforcing, 4" thick	C-14G	2873	.019	S.F.	1.60	.89	.01	2.50	3.11
5010	6" thick		2590	.022		2.51	.99	.01	3.51	4.25
5020	8" thick		2320	.024		3.28	1.11	.01	4.40	5.25
5200	Lift slab in place above the foundation, incl. forms, reinforcing,									
5210	concrete (4000 psi) and columns, over 20,000 S.F./floor	C-14B	2113	.098	S.F.	7.40	5.05	.41	12.86	16.25
5250	10,000 S.F. to 20,000 S.F./floor		1650	.126		8.10	6.45	.53	15.08	19.25
5300	Under 10,000 S.F./floor		1500	.139		8.75	7.10	.58	16.43	21
5500	Lightweight, ready mix, including screed finish only,									
5510	not including forms or reinforcing									
5550	1:4 (2500 psi) for structural roof decks	C-14B	260	.800	C.Y.	114	41	3.35	158.35	191

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03 30 Cast-In-Place Concrete

03 30 53 – Miscellaneous Cast-In-Place Concrete

	03 30 53.40 Concrete In Place	Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
5600	1:6 (3000 psi) for ground slab with radiant heat	C-14F	92	.783	C.Y.	135	36.50	.29	171.79	202
5650	1:3:2 (2000 psi) with sand aggregate, roof deck	C-14B	260	.800		114	41	3.35	158.35	191
5700	Ground slab (2000 psi)	C-14F	107	.673		114	31.50	.25	145.75	172
5900	Pile caps (3000 psi), incl. forms and reinf., sq. or rect., under 10 C.Y.	C-14C	54.14	2.069		192	101	.50	293.50	365
5950	Over 10 C.Y.		75	1.493		181	73	.36	254.36	310
6000	Triangular or hexagonal, under 10 C.Y.		53	2.113		146	104	.51	250.51	320
6050	Over 10 C.Y.		85	1.318		163	64.50	.32	227.82	277
6200	Retaining walls (3000 psi), gravity, 4' high see Section 32 32	C-14D	66.20	3.021		165	155	13.15	333.15	430
6250	10' high		125	1.600		158	82	6.95	246.95	305
6300	Cantilever, level backfill loading, 8' high		70	2.857		176	146	12.45	334.45	430
6350	16' high		91	2.198		170	112	9.55	291.55	370
6800	Stairs (3500 psi), not including safety treads, free standing, 3'-6" wide	C-14H	83	.578	LF Nose	6.25	29	.32	35.57	51.50
6850	Cast on ground		125	.384	"	5.30	19.30	.21	24.81	35
7000	Stair landings, free standing		200	.240	S.F.	5	12.05	.13	17.18	24
7050	Cast on ground		475	.101	"	4.03	5.10	.06	9.19	12.15

03 31 Structural Concrete

03 31 13 – Heavyweight Structural Concrete

03 31 13.25 Concrete, Hand Mix

0010	**CONCRETE, HAND MIX** for small quantities or remote areas									
0050	Includes bulk local aggregate, bulk sand, bagged Portland									
0060	cement (Type I) and water, using gas powered cement mixer									
0125	2500 psi	C-30	135	.059	C.F.	4.03	2.43	1.20	7.66	9.45
0130	3000 psi		135	.059		4.35	2.43	1.20	7.98	9.80
0135	3500 psi		135	.059		4.54	2.43	1.20	8.17	10
0140	4000 psi		135	.059		4.77	2.43	1.20	8.40	10.25
0145	4500 psi		135	.059		5.05	2.43	1.20	8.68	10.55
0150	5000 psi		135	.059		5.40	2.43	1.20	9.03	10.90
0300	Using pre-bagged dry mix and wheelbarrow (80-lb. bag = 0.6 C.F.)									
0340	4000 psi	1 Clab	48	.167	C.F.	7.95	6.85		14.80	19.10

03 31 13.30 Concrete, Volumetric Site-Mixed

0010	**CONCRETE, VOLUMETRIC SITE-MIXED**									
0015	Mixed on-site in volumetric truck									
0020	Includes local aggregate, sand, Portland cement (Type I) and water									
0025	Excludes all additives and treatments									
0100	3000 psi, 1 C.Y. mixed and discharged				C.Y.	215			215	236
0110	2 C.Y.					159			159	174
0120	3 C.Y.					140			140	154
0130	4 C.Y.					124			124	136
0140	5 C.Y.					114			114	125
0200	For truck holding/waiting time past first 2 on-site hours, add				Hr.	97			97	107
0210	For trip charge beyond first 20 miles, each way, add				Mile	3.65			3.65	4.02
0220	For each additional increase of 500 psi, add				Ea.	4.59			4.59	5.05

03 31 13.35 Heavyweight Concrete, Ready Mix

0010	**HEAVYWEIGHT CONCRETE, READY MIX**, delivered R033105-10									
0012	Includes local aggregate, sand, Portland cement (Type I) and water									
0015	Excludes all additives and treatments R033105-20									
0020	2000 psi				C.Y.	110			110	121
0100	2500 psi R033105-30					113			113	125

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	03 31 13.35 Heavyweight Concrete, Ready Mix		Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0150	3000 psi					C.Y.	124			124	136
0200	3500 psi	R033105-40					125			125	137
0300	4000 psi						128			128	141
0350	4500 psi	R033105-50					132			132	145
0400	5000 psi						139			139	153
0411	6000 psi						143			143	157
0412	8000 psi						150			150	166
0413	10,000 psi						158			158	174
0414	12,000 psi						166			166	182
1000	For high early strength (Portland cement Type III), add						10%				
1010	For structural lightweight with regular sand, add						25%				
1300	For winter concrete (hot water), add						5.35			5.35	5.90
1410	For mid-range water reducer, add						4.01			4.01	4.41
1420	For high-range water reducer/superplasticizer, add						6.25			6.25	6.90
1430	For retarder, add						3.25			3.25	3.58
1440	For non-Chloride accelerator, add						6.40			6.40	7.05
1450	For Chloride accelerator, per 1%, add						3.91			3.91	4.30
1460	For fiber reinforcing, synthetic (1 lb./C.Y.), add						8.05			8.05	8.85
1500	For Saturday delivery, add						8.25			8.25	9.10
1510	For truck holding/waiting time past 1st hour per load, add					Hr.	105			105	115
1520	For short load (less than 4 C.Y.), add per load					Ea.	92			92	101
2000	For all lightweight aggregate, add					C.Y.	45%				

03 31 13.70 Placing Concrete

0010	**PLACING CONCRETE**	R033105-70								
0020	Includes labor and equipment to place, level (strike off) and consolidate									
0050	Beams, elevated, small beams, pumped	C-20	60	1.067	C.Y.	47	14.95	61.95	87
0100	With crane and bucket	C-7	45	1.600		71.50	23.50	95	133
0200	Large beams, pumped	C-20	90	.711		31.50	9.95	41.45	58
0250	With crane and bucket	C-7	65	1.108		49.50	16.30	65.80	92.50
0400	Columns, square or round, 12" thick, pumped	C-20	60	1.067		47	14.95	61.95	87
0450	With crane and bucket	C-7	40	1.800		80.50	26.50	107	150
0600	18" thick, pumped	C-20	90	.711		31.50	9.95	41.45	58
0650	With crane and bucket	C-7	55	1.309		58.50	19.25	77.75	109
0800	24" thick, pumped	C-20	92	.696		30.50	9.75	40.25	57
0850	With crane and bucket	C-7	70	1.029		46	15.15	61.15	85.50
1000	36" thick, pumped	C-20	140	.457		20	6.40	26.40	37.50
1050	With crane and bucket	C-7	100	.720		32	10.60	42.60	60
1400	Elevated slabs, less than 6" thick, pumped	C-20	140	.457		20	6.40	26.40	37.50
1450	With crane and bucket	C-7	95	.758		34	11.15	45.15	63.50
1500	6" to 10" thick, pumped	C-20	160	.400		17.60	5.60	23.20	32.50
1550	With crane and bucket	C-7	110	.655		29	9.65	38.65	54.50
1600	Slabs over 10" thick, pumped	C-20	180	.356		15.65	4.99	20.64	29
1650	With crane and bucket	C-7	130	.554		24.50	8.15	32.65	46
1900	Footings, continuous, shallow, direct chute	C-6	120	.400		17.10	.44	17.54	26
1950	Pumped	C-20	150	.427		18.80	6	24.80	35
2000	With crane and bucket	C-7	90	.800		35.50	11.80	47.30	66.50
2100	Footings, continuous, deep, direct chute	C-6	140	.343		14.65	.38	15.03	22.50
2150	Pumped	C-20	160	.400		17.60	5.60	23.20	32.50
2200	With crane and bucket	C-7	110	.655		29	9.65	38.65	54.50
2400	Footings, spread, under 1 C.Y., direct chute	C-6	55	.873		37.50	.97	38.47	57
2450	Pumped	C-20	65	.985		43.50	13.80	57.30	80.50
2500	With crane and bucket	C-7	45	1.600		71.50	23.50	95	133

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	03 31 13.70 Placing Concrete	Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
2600	Over 5 C.Y., direct chute	C-6	120	.400	C.Y.		17.10	.44	17.54	26
2650	Pumped	C-20	150	.427			18.80	6	24.80	35
2700	With crane and bucket	C-7	100	.720			32	10.60	42.60	60
2900	Foundation mats, over 20 C.Y., direct chute	C-6	350	.137			5.85	.15	6	8.95
2950	Pumped	C-20	400	.160			7.05	2.24	9.29	13.05
3000	With crane and bucket	C-7	300	.240			10.70	3.53	14.23	20
3200	Grade beams, direct chute	C-6	150	.320			13.65	.36	14.01	21
3250	Pumped	C-20	180	.356			15.65	4.99	20.64	29
3300	With crane and bucket	C-7	120	.600			27	8.85	35.85	50
3500	High rise, for more than 5 stories, pumped, add per story	C-20	2100	.030			1.34	.43	1.77	2.49
3510	With crane and bucket, add per story	C-7	2100	.034			1.53	.50	2.03	2.86
3700	Pile caps, under 5 C.Y., direct chute	C-6	90	.533			23	.59	23.59	35
3750	Pumped	C-20	110	.582			25.50	8.15	33.65	47.50
3800	With crane and bucket	C-7	80	.900			40	13.25	53.25	75
3850	Pile cap, 5 C.Y. to 10 C.Y., direct chute	C-6	175	.274			11.70	.30	12	18
3900	Pumped	C-20	200	.320			14.10	4.49	18.59	26
3950	With crane and bucket	C-7	150	.480			21.50	7.05	28.55	40
4000	Over 10 C.Y., direct chute	C-6	215	.223			9.55	.25	9.80	14.60
4050	Pumped	C-20	240	.267			11.75	3.74	15.49	22
4100	With crane and bucket	C-7	185	.389			17.35	5.75	23.10	32.50
4300	Slab on grade, up to 6" thick, direct chute	C-6	110	.436			18.65	.48	19.13	28.50
4350	Pumped	C-20	130	.492			21.50	6.90	28.40	40
4400	With crane and bucket	C-7	110	.655			29	9.65	38.65	54.50
4600	Over 6" thick, direct chute	C-6	165	.291			12.40	.32	12.72	19.05
4650	Pumped	C-20	185	.346			15.25	4.85	20.10	28.50
4700	With crane and bucket	C-7	145	.497			22	7.30	29.30	41.50
4900	Walls, 8" thick, direct chute	C-6	90	.533			23	.59	23.59	35
4950	Pumped	C-20	100	.640			28	8.95	36.95	52.50
5000	With crane and bucket	C-7	80	.900			40	13.25	53.25	75
5050	12" thick, direct chute	C-6	100	.480			20.50	.53	21.03	31.50
5100	Pumped	C-20	110	.582			25.50	8.15	33.65	47.50
5200	With crane and bucket	C-7	90	.800			35.50	11.80	47.30	66.50
5300	15" thick, direct chute	C-6	105	.457			19.50	.51	20.01	30
5350	Pumped	C-20	120	.533			23.50	7.50	31	43.50
5400	With crane and bucket	C-7	95	.758			34	11.15	45.15	63.50
5600	Wheeled concrete dumping, add to placing costs above									
5610	Walking cart, 50' haul, add	C-18	32	.281	C.Y.		11.60	1.82	13.42	19.55
5620	150' haul, add		24	.375			15.50	2.42	17.92	26
5700	250' haul, add		18	.500			20.50	3.23	23.73	34.50
5800	Riding cart, 50' haul, add	C-19	80	.113			4.64	1.22	5.86	8.35
5810	150' haul, add		60	.150			6.20	1.63	7.83	11.15
5900	250' haul, add		45	.200			8.25	2.17	10.42	14.90
6000	Concrete in-fill for pan-type metal stairs and landings. Manual placement									
6010	includes up to 50' horizontal haul from point of concrete discharge.									
6100	Stair pan treads, 2" deep									
6110	Flights in 1st floor level up/down from discharge point	C-8A	3200	.015	S.F.		.66		.66	.99
6120	2nd floor level		2500	.019			.84		.84	1.27
6130	3rd floor level		2000	.024			1.06		1.06	1.58
6140	4th floor level		1800	.027			1.17		1.17	1.76
6200	Intermediate stair landings, pan-type 4" deep									
6210	Flights in 1st floor level up/down from discharge point	C-8A	2000	.024	S.F.		1.06		1.06	1.58
6220	2nd floor level		1500	.032			1.41		1.41	2.11
6230	3rd floor level		1200	.040			1.76		1.76	2.64

03 31 Structural Concrete

03 31 13 – Heavyweight Structural Concrete

	03 31 13.70 Placing Concrete	Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
6240	4th floor level	C-8A	1000	.048	S.F.		2.11		2.11	3.17

03 35 Concrete Finishing

03 35 13 – High-Tolerance Concrete Floor Finishing

03 35 13.30 Finishing Floors, High Tolerance

0010	**FINISHING FLOORS, HIGH TOLERANCE**									
0012	Finishing of fresh concrete flatwork requires that concrete									
0013	first be placed, struck off & consolidated									
0015	Basic finishing for various unspecified flatwork									
0100	Bull float only	C-10	4000	.006	S.F.		.28		.28	.41
0125	Bull float & manual float		2000	.012			.56		.56	.83
0150	Bull float, manual float & broom finish, w/edging & joints		1850	.013			.60		.60	.89
0200	Bull float, manual float & manual steel trowel		1265	.019			.88		.88	1.31
0210	For specified Random Access Floors in ACI Classes 1, 2, 3 and 4 to achieve									
0215	Composite Overall Floor Flatness and Levelness values up to FF35/FL25									
0250	Bull float, machine float & machine trowel (walk-behind)	C-10C	1715	.014	S.F.		.65	.02	.67	.99
0300	Power screed, bull float, machine float & trowel (walk-behind)	C-10D	2400	.010			.46	.05	.51	.75
0350	Power screed, bull float, machine float & trowel (ride-on)	C-10E	4000	.006			.28	.06	.34	.48
0352	For specified Random Access Floors in ACI Classes 5, 6, 7 and 8 to achieve									
0354	Composite Overall Floor Flatness and Levelness values up to FF50/FL50									
0356	Add for two-dimensional restraightening after power float	C-10	6000	.004	S.F.		.19		.19	.28
0358	For specified Random or Defined Access Floors in ACI Class 9 to achieve									
0360	Composite Overall Floor Flatness and Levelness values up to FF100/FL100									
0362	Add for two-dimensional restraightening after bull float & power float	C-10	3000	.008	S.F.		.37		.37	.55
0364	For specified Superflat Defined Access Floors in ACI Class 9 to achieve									
0366	Minimum Floor Flatness and Levelness values of FF100/FL100									
0368	Add for 2-dim'l restraightening after bull float, power float, power trowel	C-10	2000	.012	S.F.		.56		.56	.83

03 35 16 – Heavy-Duty Concrete Floor Finishing

03 35 16.30 Finishing Floors, Heavy-Duty

0010	**FINISHING FLOORS, HEAVY-DUTY**									
1800	Floor abrasives, dry shake on fresh concrete, .25 psf, aluminum oxide	1 Cefi	850	.009	S.F.	.59	.46		1.05	1.33
1850	Silicon carbide		850	.009		.86	.46		1.32	1.62
2000	Floor hardeners, dry shake, metallic, light service, .50 psf		850	.009		.43	.46		.89	1.15
2050	Medium service, .75 psf		750	.011		.65	.52		1.17	1.48
2100	Heavy service, 1.0 psf		650	.012		.86	.60		1.46	1.84
2150	Extra heavy, 1.5 psf		575	.014		1.29	.68		1.97	2.42
2300	Non-metallic, light service, .50 psf		850	.009		.16	.46		.62	.86
2350	Medium service, .75 psf		750	.011		.24	.52		.76	1.04
2400	Heavy service, 1.0 psf		650	.012		.33	.60		.93	1.25
2450	Extra heavy, 1.5 psf		575	.014		.49	.68		1.17	1.54
2800	Trap rock wearing surface, dry shake, for monolithic floors									
2810	2.0 psf	C-10B	1250	.032	S.F.	.01	1.41	.20	1.62	2.35
3800	Dustproofing, liquid, for cured concrete, solvent-based, 1 coat	1 Cefi	1900	.004		.18	.21		.39	.50
3850	2 coats		1300	.006		.65	.30		.95	1.16
4000	Epoxy-based, 1 coat		1500	.005		.15	.26		.41	.55
4050	2 coats		1500	.005		.30	.26		.56	.71

03 35 19 – Colored Concrete Finishing

03 35 19.30 Finishing Floors, Colored

0010	**FINISHING FLOORS, COLORED**									
3000	Floor coloring, dry shake on fresh concrete (0.6 psf)	1 Cefi	1300	.006	S.F.	.45	.30		.75	.94

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03 35 Concrete Finishing

03 35 19 – Colored Concrete Finishing

	03 35 19.30 Finishing Floors, Colored	Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
3050	(1.0 psf)	1 Cefi	625	.013	S.F.	.75	.63		1.38	1.75
3100	Colored dry shake powder only				Lb.	.75			.75	.83
3600	1/2" topping using 0.6 psf dry shake powdered color	C-10B	590	.068	S.F.	4.70	3	.42	8.12	10.10
3650	1.0 psf dry shake powdered color	"	590	.068	"	5	3	.42	8.42	10.45

03 35 23 – Exposed Aggregate Concrete Finishing

03 35 23.30 Finishing Floors, Exposed Aggregate

0010	**FINISHING FLOORS, EXPOSED AGGREGATE**									
1600	Exposed local aggregate finish, seeded on fresh concrete, 3 lb./S.F.	1 Cefi	625	.013	S.F.	.20	.63		.83	1.14
1650	4 lb./S.F.	"	465	.017	"	.34	.84		1.18	1.61

03 35 29 – Tooled Concrete Finishing

03 35 29.30 Finishing Floors, Tooled

0010	**FINISHING FLOORS, TOOLED**									
4400	Stair finish, fresh concrete, float finish	1 Cefi	275	.029	S.F.		1.42		1.42	2.10
4500	Steel trowel finish		200	.040			1.96		1.96	2.89
4600	Silicon carbide finish, dry shake on fresh concrete, .25 psf		150	.053		.59	2.61		3.20	4.50

03 35 29.60 Finishing Walls

0010	**FINISHING WALLS**									
0020	Break ties and patch voids	1 Cefi	540	.015	S.F.	.04	.72		.76	1.12
0050	Burlap rub with grout		450	.018		.04	.87		.91	1.33
0100	Carborundum rub, dry		270	.030			1.45		1.45	2.14
0150	Wet rub		175	.046			2.24		2.24	3.30
0300	Bush hammer, green concrete	B-39	1000	.048			2.07	.23	2.30	3.39
0350	Cured concrete	"	650	.074			3.19	.36	3.55	5.20
0500	Acid etch	1 Cefi	575	.014		.13	.68		.81	1.14
0600	Float finish, 1/16" thick	"	300	.027		.39	1.30		1.69	2.35
0700	Sandblast, light penetration	E-11	1100	.029		.54	1.32	.19	2.05	2.87
0750	Heavy penetration	"	375	.085		1.08	3.88	.54	5.50	7.90
0850	Grind form fins flush	1 Clab	700	.011	L.F.		.47		.47	.71

03 35 33 – Stamped Concrete Finishing

03 35 33.50 Slab Texture Stamping

0010	**SLAB TEXTURE STAMPING**									
0050	Stamping requires that concrete first be placed, struck off, consolidated,									
0060	bull floated and free of bleed water. Decorative stamping tasks include:									
0100	Step 1 - first application of dry shake colored hardener	1 Cefi	6400	.001	S.F.	.42	.06		.48	.55
0110	Step 2 - bull float		6400	.001			.06		.06	.09
0130	Step 3 - second application of dry shake colored hardener		6400	.001		.21	.06		.27	.32
0140	Step 4 - bull float, manual float & steel trowel	3 Cefi	1280	.019			.92		.92	1.35
0150	Step 5 - application of dry shake colored release agent	1 Cefi	6400	.001		.10	.06		.16	.20
0160	Step 6 - place, tamp & remove mats	3 Cefi	2400	.010		.82	.49		1.31	1.63
0170	Step 7 - touch up edges, mat joints & simulated grout lines	1 Cefi	1280	.006			.31		.31	.45
0300	Alternate stamping estimating method includes all tasks above	4 Cefi	800	.040		1.55	1.96		3.51	4.59
0400	Step 8 - pressure wash @ 3000 psi after 24 hours	1 Cefi	1600	.005			.24		.24	.36
0500	Step 9 - roll 2 coats cure/seal compound when dry	"	800	.010		.63	.49		1.12	1.41

03 35 43 – Polished Concrete Finishing

03 35 43.10 Polished Concrete Floors

0010	**POLISHED CONCRETE FLOORS** R033543-10									
0015	Processing of cured concrete to include grinding, honing,									
0020	and polishing of interior floors with 22" segmented diamond									
0025	planetary floor grinder (2 passes in different directions per grit)									
0100	Removal of pre-existing coatings, dry, with carbide discs using									

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03 35 Concrete Finishing

03 35 43 – Polished Concrete Finishing

	03 35 43.10 Polished Concrete Floors	Crew	Daily Output	Labor-Hours	Unit	2019 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0105	dry vacuum pick-up system, final hand sweeping									
0110	Glue, adhesive or tar	J-4	1.60	15	M.S.F.	21	695	159	875	1,225
0120	Paint, epoxy, 1 coat		3.60	6.667		21	310	70.50	401.50	560
0130	2 coats		1.80	13.333		21	615	141	777	1,100
0200	Grinding and edging, wet, including wet vac pick-up and auto									
0205	scrubbing between grit changes									
0210	40-grit diamond/metal matrix	J-4A	1.60	20	M.S.F.	42.50	900	325	1,267.50	1,750
0220	80-grit diamond/metal matrix		2	16		42.50	720	260	1,022.50	1,400
0230	120-grit diamond/metal matrix		2.40	13.333		42.50	600	216	858.50	1,175
0240	200-grit diamond/metal matrix		2.80	11.429		42.50	515	185	742.50	1,025
0300	Spray on dye or stain (1 coat)	1 Cefi	16	.500		243	24.50		267.50	305
0400	Spray on densifier/hardener (2 coats)	"	8	1		325	49		374	425
0410	Auto scrubbing after 2nd coat, when dry	J-4B	16	.500			20.50	16.55	37.05	49.50
0500	Honing and edging, wet, including wet vac pick-up and auto									
0505	scrubbing between grit changes									
0510	100-grit diamond/resin matrix	J-4A	2.80	11.429	M.S.F.	42.50	515	185	742.50	1,025
0520	200-grit diamond/resin matrix	"	2.80	11.429	"	42.50	515	185	742.50	1,025
0530	Dry, including dry vacuum pick-up system, final hand sweeping									
0540	400-grit diamond/resin matrix	J-4A	2.80	11.429	M.S.F.	42.50	515	185	742.50	1,025
0600	Polishing and edging, dry, including dry vac pick-up and hand									
0605	sweeping between grit changes									
0610	800-grit diamond/resin matrix	J-4A	2.80	11.429	M.S.F.	42.50	515	185	742.50	1,025
0620	1500-grit diamond/resin matrix		2.80	11.429		42.50	515	185	742.50	1,025
0630	3000-grit diamond/resin matrix		2.80	11.429		42.50	515	185	742.50	1,025
0700	Auto scrubbing after final polishing step	J-4B	16	.500			20.50	16.55	37.05	49.50

03 37 Specialty Placed Concrete

03 37 13 – Shotcrete

03 37 13.30 Gunite (Dry-Mix)

0010	**GUNITE (DRY-MIX)**									
0020	Typical in place, 1" layers, no mesh included	C-16	2000	.028	S.F.	.40	1.28	.19	1.87	2.56
0100	Mesh for gunite 2 x 2, #12	2 Rodm	800	.020		.70	1.10		1.80	2.43
0150	#4 reinforcing bars @ 6" each way	"	500	.032		1.72	1.76		3.48	4.55
0300	Typical in place, including mesh, 2" thick, flat surfaces	C-16	1000	.056		1.50	2.55	.38	4.43	5.90
0350	Curved surfaces		500	.112		1.50	5.10	.76	7.36	10.15
0500	4" thick, flat surfaces		750	.075		2.30	3.40	.50	6.20	8.20
0550	Curved surfaces		350	.160		2.30	7.30	1.08	10.68	14.65
0900	Prepare old walls, no scaffolding, good condition	C-10	1000	.024			1.11		1.11	1.65
0950	Poor condition	"	275	.087			4.04		4.04	6
1100	For high finish requirement or close tolerance, add						50%			
1150	Very high						110%			

03 37 13.60 Shotcrete (Wet-Mix)

0010	**SHOTCRETE (WET-MIX)**									
0020	Wet mix, placed @ up to 12 C.Y./hour, 3000 psi	C-8C	80	.600	C.Y.	129	27	6.20	162.20	189
0100	Up to 35 C.Y./hour	C-8E	240	.200	"	116	8.90	2.40	127.30	144
1010	Fiber reinforced, 1" thick	C-8C	1740	.028	S.F.	.95	1.24	.29	2.48	3.22
1020	2" thick		900	.053		1.89	2.40	.55	4.84	6.30
1030	3" thick		825	.058		2.84	2.62	.60	6.06	7.70
1040	4" thick		750	.064		3.79	2.88	.66	7.33	9.20

For customer support on your Building Construction Costs with RSMeans data, call 800.448.8182.